

# Service Manual

Soft-Touch Cassette  
Deck with Dolby B-C NR

Cassette Deck  
**RS-M226**  
(Black Face)  
(Silver Face)



This is the Service Manual for the following areas.

- ① ..... For all European areas  
except United Kingdom.  
② ..... For United Kingdom.

Please use this service manual for the RS-M226. (Discard the service manual prepared for the order No. ARD82050142C8-11.)

## RS-M24 MECHANISM SERIES

### Specifications

Track system:	4-track 2-channel stereo recording and playback	Inputs:	MIC; sensitivity 0.25 mV, applicable microphone impedance 400Ω—10 kΩ
Tape speed:	4.8 cm/s		LINE; sensitivity 60 mV, input impedance more than 47 kΩ
Wow and flutter:	0.048% (WRMS), ±0.14% (DIN)	Outputs:	LINE; output level 400 mV, output impedance less than 2.3 kΩ
Frequency response: Metal tape;	20—18,000 Hz		HEADPHONES; output level 80 mV (8Ω)
	30—17,000 Hz (DIN)		applicable headphone impedance 8Ω—600Ω
CrO <sub>2</sub> tape;	20—18,000 Hz	Bias frequency:	80 kHz
	30—16,000 Hz (DIN)	Motor:	Electrical DC governor motor
Normal tape;	20—17,000 Hz	Heads:	2-head system
	30—15,000 Hz (DIN)		1 MX head for rec/playback
Signal-to-noise ratio: Dolby C NR in; 75 dB (CCIR)			1 double-gap ferrite head for erasure
Dolby B NR in; 67 dB (CCIR)		Power requirements:	① ... AC 220 V, 50-60 Hz
NR out; 57 dB			(for all European areas except United Kingdom.)
(signal level = max. input level A weighted, CrO <sub>2</sub> type tape)			② ... AC 240 V, 50 Hz
			(only for United Kingdom.)
Fast forward and		Power consumption:	12 W
rewind time: Approx. 90 seconds with C-60 cassette tape		Dimensions:	43.0 cm(W) × 10.9 cm(H) × 23.3 cm(D)
		Weight:	4.0 kg

Specifications are subject to change without notice.

\* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

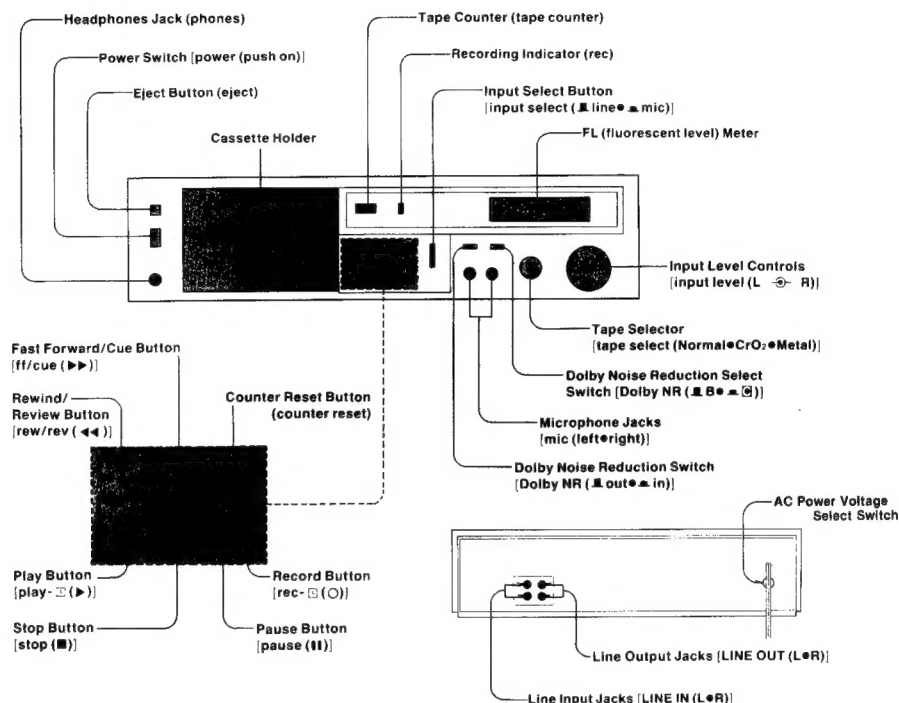
# Technics

**Matsushita Electric Trading Co., Ltd.**  
P.O. Box 288, Central Osaka Japan

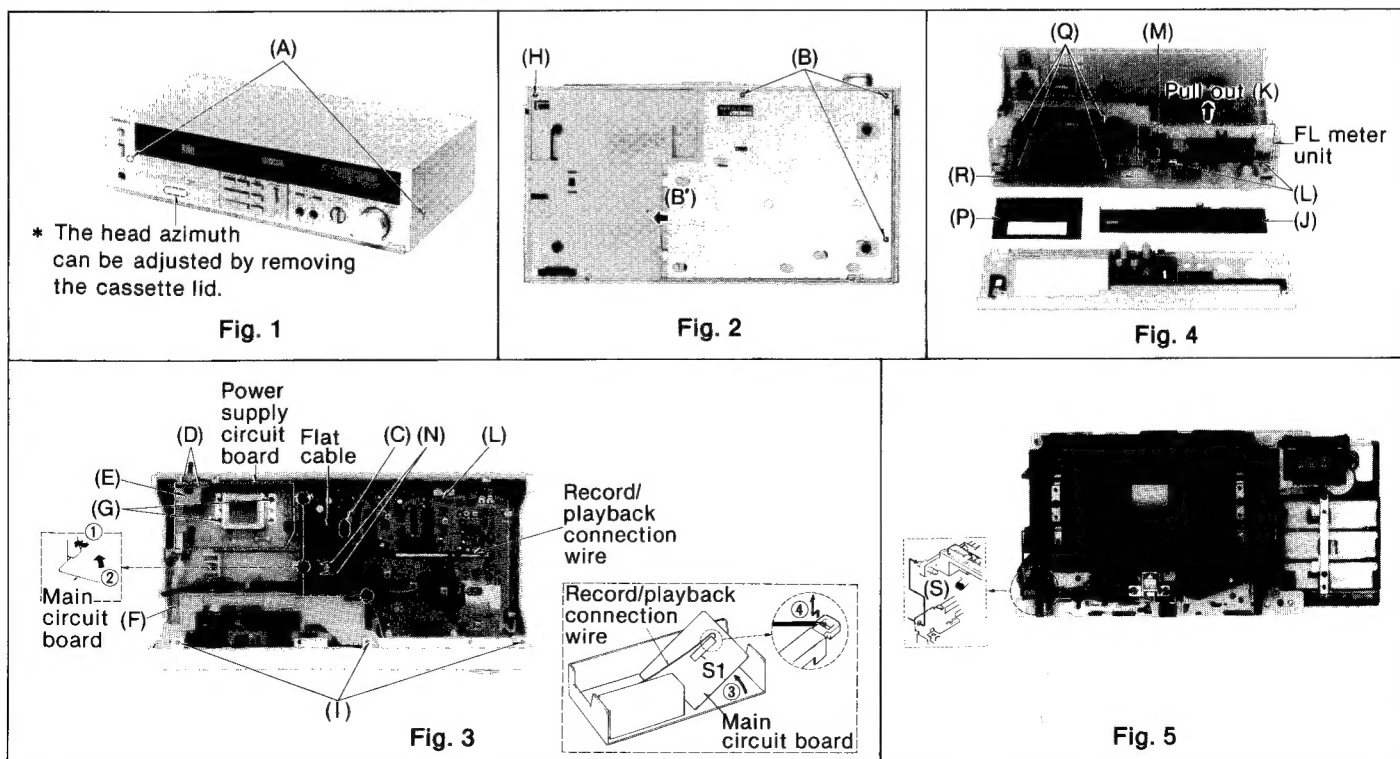
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## LOCATION OF CONTROLS AND COMPONENTS



## DISASSEMBLY INSTRUCTIONS



Ref. No.	Procedure	To remove — .	Remove — .	Shown in fig. — .
1	1	Case cover	• 2 screws .....(A)	1
2	2	Bottom cover	• 3 screws .....(B) (Slide in direction of arrow).....(B')	2
3	1 → 3	Power supply circuit board	• Pull out the flat cable from connector [4] .....(C) • 2 screws .....(D) • Cord clasper .....(E) • Pull out the switch rod-C .....(F) • 2 red screws.....(G)	3 3 3 3 3
4	1 → 2 → 4	Front panel	• 1 screw.....(H) • 3 screws .....(I)	2 3
5	1 → 2 → 4 → 5	FL meter unit	• Meter cover and meter filter .....(J) • Pull out the FL meter unit .....(K)	4 4
6	1 → 2 → 4 → 5 → 6	Main circuit board	• 3 red screws.....(L) • Pull out the switch rod-E .....(M) • Pull out the flat cable from connector [4] .....(C) • Pull out the socket .....(N) • As shown in fig. 3, push the claw in the direction of arrow ①, lift the main circuit board in the direction of arrow ②. • Remove the record/playback connection wire in the direction of arrow ④ while lifting the main circuit board in the direction of arrow ③ as shown in fig. 3. ....(O)	3, 4 4 3 3 3 3
7	1 → 2 → 4 → 5 → 7	Mechanism unit	• Cassette lid .....(P) • 4 red screws.....(Q) • Pull out the counter reset lever.....(R)	4 4 4
8	1 → 2 → 4 → 5 → 7 → 8	Cassette holder	• Slide in direction of arrow.....(S)	5

## MEASUREMENT AND ADJUSTMENT METHODS

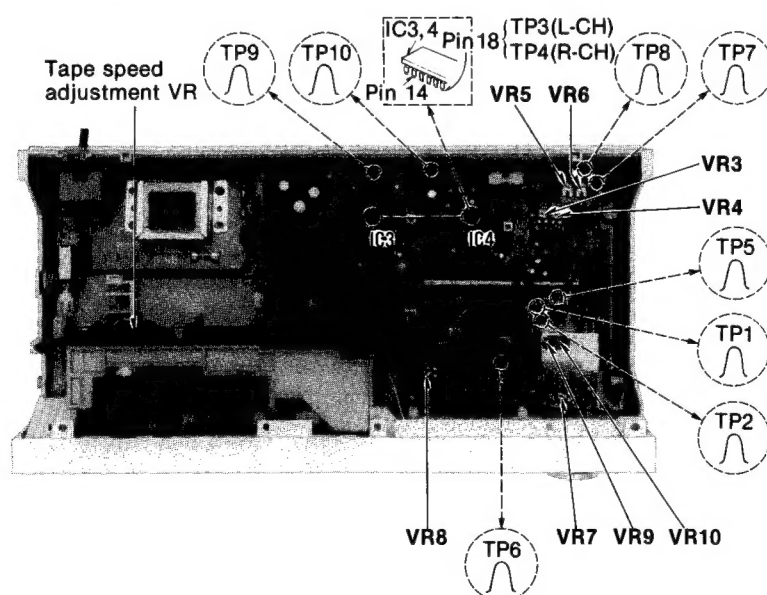
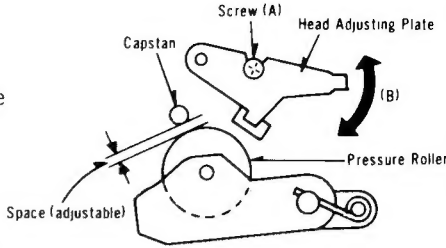
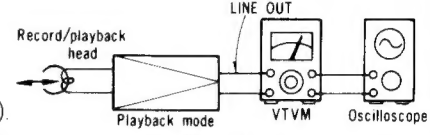
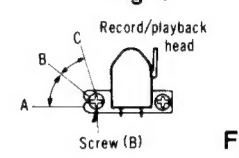
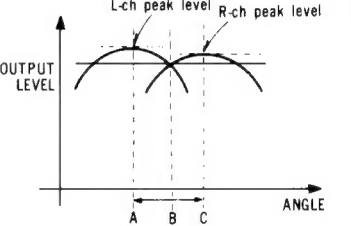
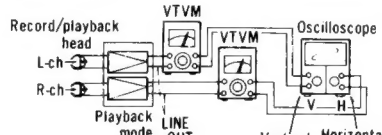
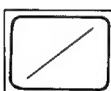
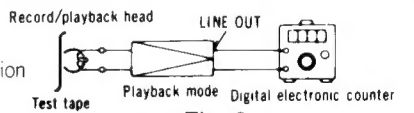


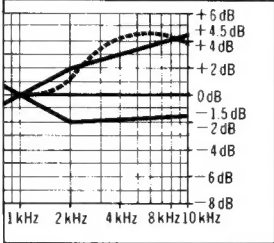
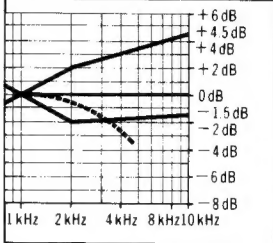
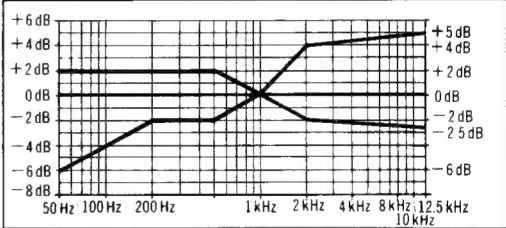
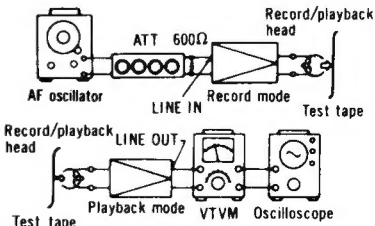
Fig. 1

**NOTES:** Keep good condition, set switches and controls in the following positions, unless otherwise specified

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature:  $20 \pm 5^{\circ}\text{C}$  ( $68 \pm 9^{\circ}\text{F}$ )
- Dolby NR switch: OUT
- Tape selector: Normal position
- Input selector: Line in
- Input level controls: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
<p><b>A Head position adjustment</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Playback and pause mode</li> </ul>	<p>(The head adjusting plate is provided to adjust the tape touch of the head in cue or review mode.)</p> <ol style="list-style-type: none"> <li>1 Press the playback button and pause button</li> <li>2 Measure the space between the pressure roller and the capstan.</li> </ol> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>Standard value: <math>0.5 \pm 0.3\text{mm}</math></b> </div> <ol style="list-style-type: none"> <li>3 If the measured value is not within the standard value, untighten screw (A), and slide the head adjusting plate in the direction of arrow (B) for adjustment.</li> </ol>  <p style="text-align: center;"><b>Fig. 2</b></p>
<p><b>B Head azimuth adjustment</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Playback mode</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM • Oscilloscope</li> <li>• Test tape (azimuth) ... QZZCFM</li> </ul>	<p><b>L-ch/R-ch output balance adjustment</b></p> <ol style="list-style-type: none"> <li>1. Make connections as shown in fig. 3.</li> <li>2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 4 for maximum output L-ch and R-ch levels.</li> <li>3. Turn the screw shown in fig. 4 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate the angle B between angles A and C, i.e., a point where L-ch and R-ch output levels come together at maximum. (Refer to figs. 4 and 5.)</li> </ol> <p><b>L-ch/R-ch phase adjustment</b></p> <ol style="list-style-type: none"> <li>4. Make connections as shown in fig. 6.</li> <li>5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 4 so that pointers of the two VTVMs swing to maximum and a waveform as illustrated in fig. 7 is obtained on the oscilloscope.</li> </ol>  <p style="text-align: center;"><b>Fig. 3</b></p>  <p style="text-align: center;"><b>Fig. 4</b></p>  <p style="text-align: center;"><b>Fig. 5</b></p>  <p style="text-align: center;"><b>Fig. 6</b></p>  <p style="text-align: center;"><b>Fig. 7</b></p>
<p><b>C Tape speed</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Playback mode</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• Digital electronic counter or frequency counter</li> <li>• Test tape ... QZZCWAT</li> </ul>	<p><b>Tape speed accuracy</b></p> <ol style="list-style-type: none"> <li>1 Test equipment connection is shown in fig. 8.</li> <li>2 Playback test tape (QZZCWAT 3,000Hz) at middle section and supply playback signal to frequency counter.</li> <li>3 Measure this frequency</li> <li>4. On the basis of 3,000Hz, determine value by following formula:</li> </ol> $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%) \quad \text{where, } f = \text{measured value}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>Standard value: <math>\pm 1.5\%</math></b> </div> <p><b>Adjustment method</b></p> <ol style="list-style-type: none"> <li>1 Playback the test tape (middle)</li> <li>2 Adjust so that frequency becomes 3,000Hz</li> <li>3 Tape speed adjustment VR shown in fig. 1.</li> </ol> <p><b>Tape speed fluctuation</b></p> <p>Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:</p> $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3,000} \times 100 (\%) \quad f_1 = \text{maximum value, } f_2 = \text{minimum value}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>Standard value: Less than 1%</b> </div> <p><b>Note:</b></p> <p>Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.</p>  <p style="text-align: center;"><b>Fig. 8</b></p>

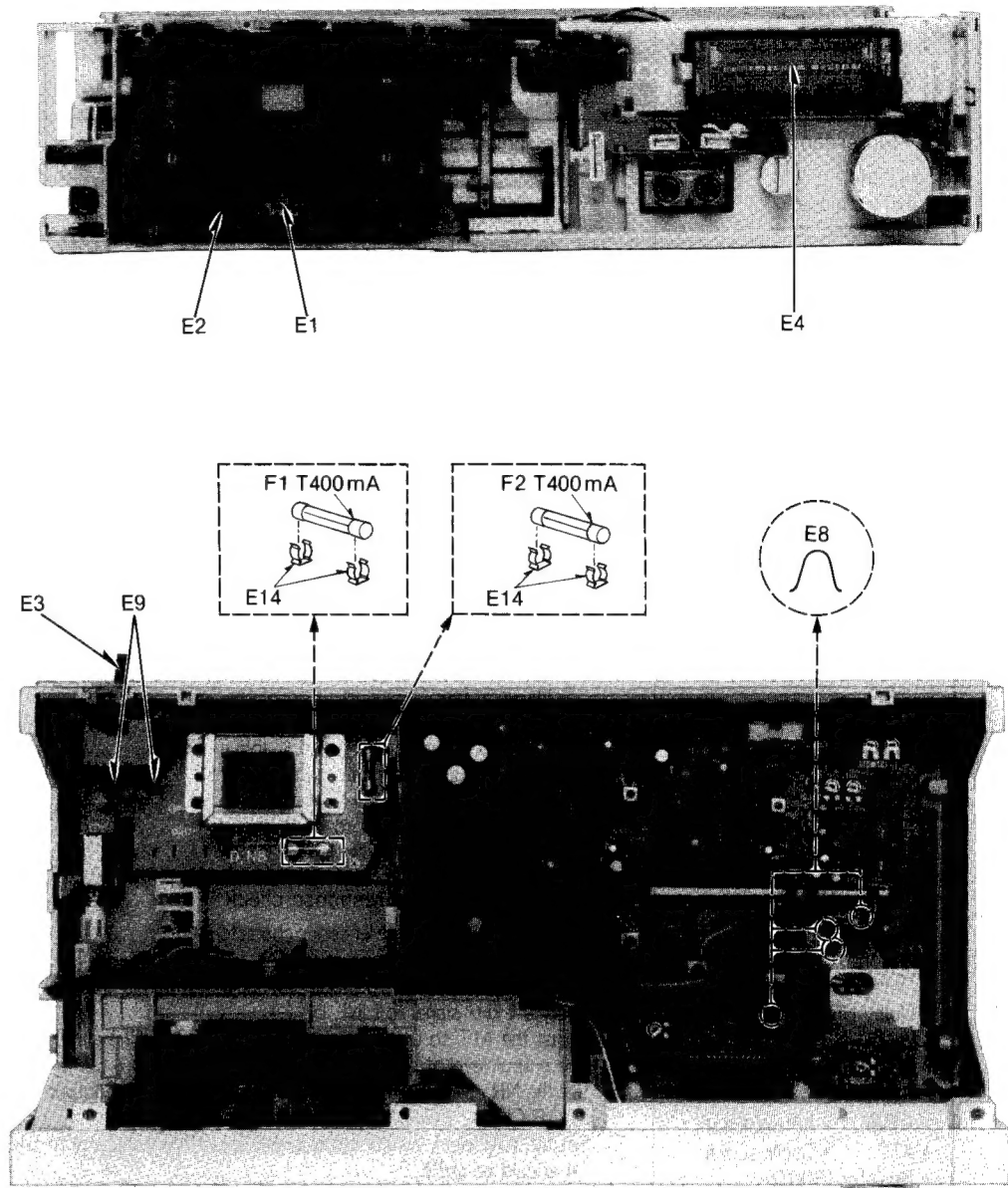
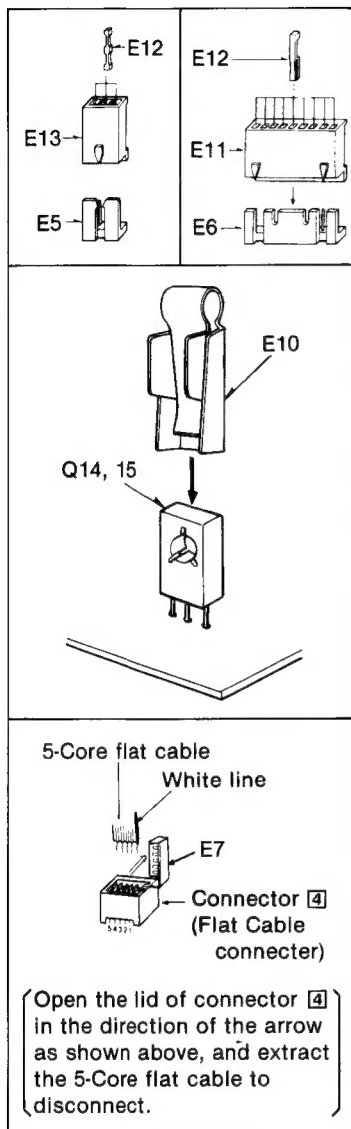
ITEM	MEASUREMENT & ADJUSTMENT
<p><b>① Playback frequency response</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Playback mode</li> <li>• Tape selector ... Normal position</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM</li> <li>• Oscilloscope</li> <li>• Test tape ... QZZCFM</li> </ul>	<ol style="list-style-type: none"> <li>1. Test equipment connection is shown in fig. 3.</li> <li>2. Place UNIT into playback mode</li> <li>3. Playback the frequency response test tape (QZZCFM).</li> <li>4. Measure output level at 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz and 63Hz, and compare each output level with the standard frequency 315Hz, at LINE OUT.</li> <li>5. Make measurement for both channels.</li> <li>6. Make sure that the measured value is within the range specified in the frequency response chart (shown in fig. 9).</li> </ol> <div data-bbox="917 230 1444 510"> <p><b>Playback frequency response chart</b></p> </div> <p><b>Fig. 9</b></p>
<p><b>② Playback gain</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Playback mode</li> <li>• Tape selector ... Normal position</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM</li> <li>• Oscilloscope</li> <li>• Test tape ... QZZCFM</li> </ul>	<ol style="list-style-type: none"> <li>1. Test equipment connection is shown in fig. 3.</li> <li>2. Playback standard recording level portion on test tape (QZZCFM 315Hz), and using VTVM measure the output level at LINE OUT.</li> <li>3. Make measurement for both channels</li> </ol> <div data-bbox="531 712 1412 779" style="border: 1px solid black; padding: 5px;"> <p><b>Standard value: 455mV ± 1dB [around 280mV: at test points TP3 (L-CH) and TP4 (R-CH)]</b></p> </div> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>1. If measured value is not within standard, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 1 on page 3).</li> <li>2. After adjustment, check "Playback frequency response" again</li> </ol>
<p><b>③ Erase current</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Record mode</li> <li>• Tape selector ... Metal position</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM</li> <li>• Oscilloscope</li> </ul>	<ol style="list-style-type: none"> <li>1. Test equipment connection is shown in fig. 10.</li> <li>2. Press the record and pause buttons</li> <li>3. Set the tape selector to metal position.</li> <li>4. Read voltage on VTVM and calculate erase current by following formula:</li> </ol> $\text{Erase current (A)} = \frac{\text{Voltage across both ends of R124}}{1 (\Omega)}$ <div data-bbox="531 1093 1053 1142" style="border: 1px solid black; padding: 5px;"> <p><b>Standard value: 155 ± 15 mA (Metal position)</b></p> </div> <div data-bbox="1085 918 1428 1070"> </div> <p><b>Fig. 10</b></p> <ol style="list-style-type: none"> <li>5. If measured value is not within standard, adjust as follows.</li> </ol> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>1. Open the point (A) and short the point (B) on the main circuit board in the wiring connection diagram (See page 15).</li> <li>2. Make measurement for erase current</li> <li>3. Make sure that the measured value is within the erase current of 140mA to 170mA.</li> <li>4. If it is beyond the value, carry out the following adjustments: <ul style="list-style-type: none"> <li>• If the erase current is less than 140mA, short the point (A).</li> <li>• If the erase current is more than 170mA, open the points (A) and (B).</li> </ul> </li> </ol>
<p><b>④ Overall frequency response</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Record/playback mode</li> <li>• Tape selector ... Normal position ... CrO<sub>2</sub> position ... Metal position</li> <li>• Input level controls ... MAX</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM</li> <li>• AF oscillator</li> <li>• ATT</li> <li>• Oscilloscope</li> <li>• Resistor (600Ω)</li> <li>• Test tape (reference blank tape) ... QZZCRA for Normal ... QZZCRX for CrO<sub>2</sub> ... QZZCRZ for Metal</li> </ul>	<p><b>Note :</b></p> <p>Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).</p> <div data-bbox="933 1417 1444 1691"> <p><b>Overall frequency response chart (Normal)</b></p> </div> <p><b>Fig. 11</b></p> <p><b>Overall frequency response adjustment by recording bias current</b></p> <p><b>Note 1:</b></p> <p>On RS-M226, overall frequency response is adjusted with tape selector set at Normal.</p> <p><b>Note 2:</b></p> <p>Recording equalizer is fixed.</p> <ol style="list-style-type: none"> <li>1. Make connections as shown in fig. 12.</li> <li>2. Input a 1 kHz, -24 dB signal through LINE IN. Place the set in record mode.</li> <li>3. Fine adjust the attenuator to obtain 0.4 V LINE OUT output. <ul style="list-style-type: none"> <li>• Make sure that the input signal level is -24 ± 4 dB with 0.45 V output voltage.</li> </ul> </li> </ol> <div data-bbox="909 1747 1436 2049"> </div> <p><b>Fig. 12</b></p>

ITEM	MEASUREMENT & ADJUSTMENT
	<p>4. Set the tape selector to Normal, and load the test tape (QZZCRA).</p> <p>5. Adjust the attenuator to reduce the input signal level by 20 dB.</p> <p>6. Adjust the AF oscillator to generate 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz and 10 kHz signals, and record these signals on the test tape.</p> <p>7. Playback the signals recorded in step 6, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 11). (If the curve is within the charted specifications, proceed to steps 8, 9 and 10.) If the curve is not within the charted specifications, adjust as follows:</p> <p><b>Adjustment (A):</b> When the curve exceeds the overall frequency response chart specifications (fig. 11) as shown in fig. 13.</p>  <p><b>Fig. 13</b></p> <ol style="list-style-type: none"> <li>1) Increase bias current by turning VR9 (L-CH) and VR10 (R-CH). (See fig. 1 on page 3.)</li> <li>2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 11.)</li> <li>3) If the curve still exceeds the specifications (fig. 11), increase bias current further and repeat steps 6 and 7.</li> </ol> <p>8. Switch the tape selector to CrO<sub>2</sub>, change test tape to QZZCRX, and record 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz and 12.5 kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO<sub>2</sub> tapes (fig. 15).</p> <p>9. Switch the tape selector to Metal, change test tape to QZZCRZ, and record 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz and 12.5 kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 15).</p> <p>10. Confirm that bias currents are approximately as follows when the tape selector is set at different positions.</p> <ul style="list-style-type: none"> <li>• Read voltage on VTVM and calculate bias current by following formula:  <math display="block">\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10 (\Omega)}</math> </li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>around 350 <math>\mu</math>A (Normal position)  around 450 <math>\mu</math>A (CrO<sub>2</sub> position)  around 700 <math>\mu</math>A (Metal position) } : measured at TP1 (L-CH) and TP2 (R-CH)</p> </div> <p><b>Adjustment (B):</b> When the curve falls below the overall frequency response chart specifications (fig. 11) as shown in fig. 14.</p>  <p><b>Fig. 14</b></p> <ol style="list-style-type: none"> <li>1) Reduce bias current by turning VR9 (L-CH) and VR10 (R-CH).</li> <li>2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 11.)</li> <li>3) If the curve still falls below the charted specifications (fig. 11), reduce bias current further and repeat steps 6 and 7.</li> </ol> <p><b>Overall frequency response chart (CrO<sub>2</sub>, Metal)</b></p>  <p><b>Fig. 15</b></p>
<p><b>H Overall gain</b></p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Record/playback mode</li> <li>• Tape selector ..... Normal position</li> <li>• Input level controls ... MAX</li> <li>• Standard input level; MIC ..... - 72 <math>\pm</math> 4 dB LINE IN ... - 24 <math>\pm</math> 4 dB</li> </ul>	<ol style="list-style-type: none"> <li>1. Test equipment connection is shown in fig. 16.</li> <li>2. Place UNIT into record mode, and tape selector to normal position.</li> <li>3. Supply 1 kHz signal (-24 dB) from AF oscillator, through ATT to LINE IN.</li> <li>4. Adjust ATT until monitor level at LINE OUT becomes 0.45 V.</li> <li>5. Using test tape, make recording.</li> <li>6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.45 V.</li> </ol>  <p><b>Fig. 16</b></p>

ITEM	MEASUREMENT & ADJUSTMENT
<p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM</li> <li>• ATT</li> <li>• Resistor (600Ω)</li> <li>• Test tape (reference blank tape) ... QZZCRA for Normal</li> </ul>	<ol style="list-style-type: none"> <li>If measured value is not 0.45V, adjust VR5 (L-CH), VR6 (R-CH) (See fig. 1 on).</li> <li>Repeat from step (2).</li> </ol>
<p>① Fluorescent meter</p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Record mode</li> <li>• Tape selector ..... Normal position</li> <li>• Input level controls ... MAX</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM</li> <li>• ATT</li> <li>• AF oscillator</li> </ul>	<ol style="list-style-type: none"> <li>Test equipment connection is shown in fig. 16.</li> <li>As shown in fig. 17, connect the collector of Q8 and peak reset terminal.</li> <li>Supply 1kHz signal (−24 dB) to the LINE IN jack, then press the record button.</li> <li>Adjust the ATT so that the output level at LINE OUT jack becomes 0.45V (The input level at this condition is termed the standard input level).</li> <li>Adjustment at “−20 dB”:             <ol style="list-style-type: none"> <li>Adjust the ATT so that input level is −20dB below standard recording level.</li> <li>Adjust VR7 so that the −20dB segment lights up in the <math>-20 \pm 1</math> dB range (L-CH ONLY) (See fig. 18).</li> </ol> </li> <li>Adjustment at “0 dB”:             <ol style="list-style-type: none"> <li>Adjust the ATT so that the output level at LINE OUT jack becomes 0.45V. (The input level at this condition is termed the standard input level.)</li> <li>Adjust VR8 so that the +1 dB segment lights up in the <math>0 \pm 0.2</math> dB range of the standard input level (See fig. 19).</li> </ol> </li> <li>Repeat twice between steps 5 and 6 above.</li> <li>Adjust ATT and check that all segments light up when an input signal level is increased to 10dB higher than the standard input level (See fig. 20).</li> </ol> <div data-bbox="1021 436 1316 716"> </div> <div data-bbox="1276 683 1364 728"> <p>Fig. 17</p> </div> <div data-bbox="973 739 1396 884"> </div> <div data-bbox="1141 840 1228 884"> <p>Fig. 18</p> </div> <div data-bbox="973 884 1396 1030"> </div> <div data-bbox="1141 985 1228 1030"> <p>Fig. 19</p> </div> <div data-bbox="973 1030 1396 1176"> </div> <div data-bbox="1141 1131 1228 1176"> <p>Fig. 20</p> </div>
<p>② Dolby NR circuit</p> <p>Condition:</p> <ul style="list-style-type: none"> <li>• Record mode</li> <li>• Dolby NR switch ... IN/OUT</li> <li>• Dolby NR select switch ... B/C</li> <li>• Input level controls ... MAX</li> </ul> <p>Equipment:</p> <ul style="list-style-type: none"> <li>• VTVM</li> <li>• ATT</li> <li>• Resistor (600Ω)</li> <li>• AF oscillator</li> <li>• Oscilloscope</li> </ul>	<p><b>Dolby circuit frequency response check</b></p> <ul style="list-style-type: none"> <li>• Check of the Dolby-B type encoder characteristics             <ol style="list-style-type: none"> <li>Make connections as shown in fig. 21.</li> <li>Set the unit to the record mode. (NR select switch is OUT.)</li> <li>Apply a 1 kHz signal to LINE IN.</li> <li>Adjust the ATT so that the output level at TP3 (L-CH) and TP4 (R-CH) is 12.3mV.</li> <li>The output level at pin 14 should be 0 dB.</li> <li>Set the NR select switch to B, and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is <math>+6 \text{ dB} \pm 2.5 \text{ dB}</math>.</li> <li>Set the NR select switch to OUT, and adjust the frequency to 5 kHz. The output signal level at pin 14 should be 0 dB.</li> <li>Set the NR select switch to B and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is <math>8 \text{ dB} \pm 2.5 \text{ dB}</math>.</li> </ol> </li> <li>• Check of Dolby-C type encoder characteristics             <ol style="list-style-type: none"> <li>Repeat steps 1-5 above.</li> <li>Set the NR select switch to C and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is <math>11.5 \text{ dB} \pm 2.5 \text{ dB}</math>.</li> <li>Set the NR select switch to OUT and adjust the frequency to 5 kHz. The output signal at pin 14 should be 0 dB.</li> <li>Set the NR select switch to C and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is <math>8.5 \text{ dB} \pm 2.5 \text{ dB}</math>.</li> </ol> </li> </ul> <div data-bbox="933 1523 1444 1724"> </div> <div data-bbox="1133 1736 1220 1780"> <p>Fig. 21</p> </div>



## ELECTRICAL PARTS LOCATION



## REPLACEMENT PARTS LIST

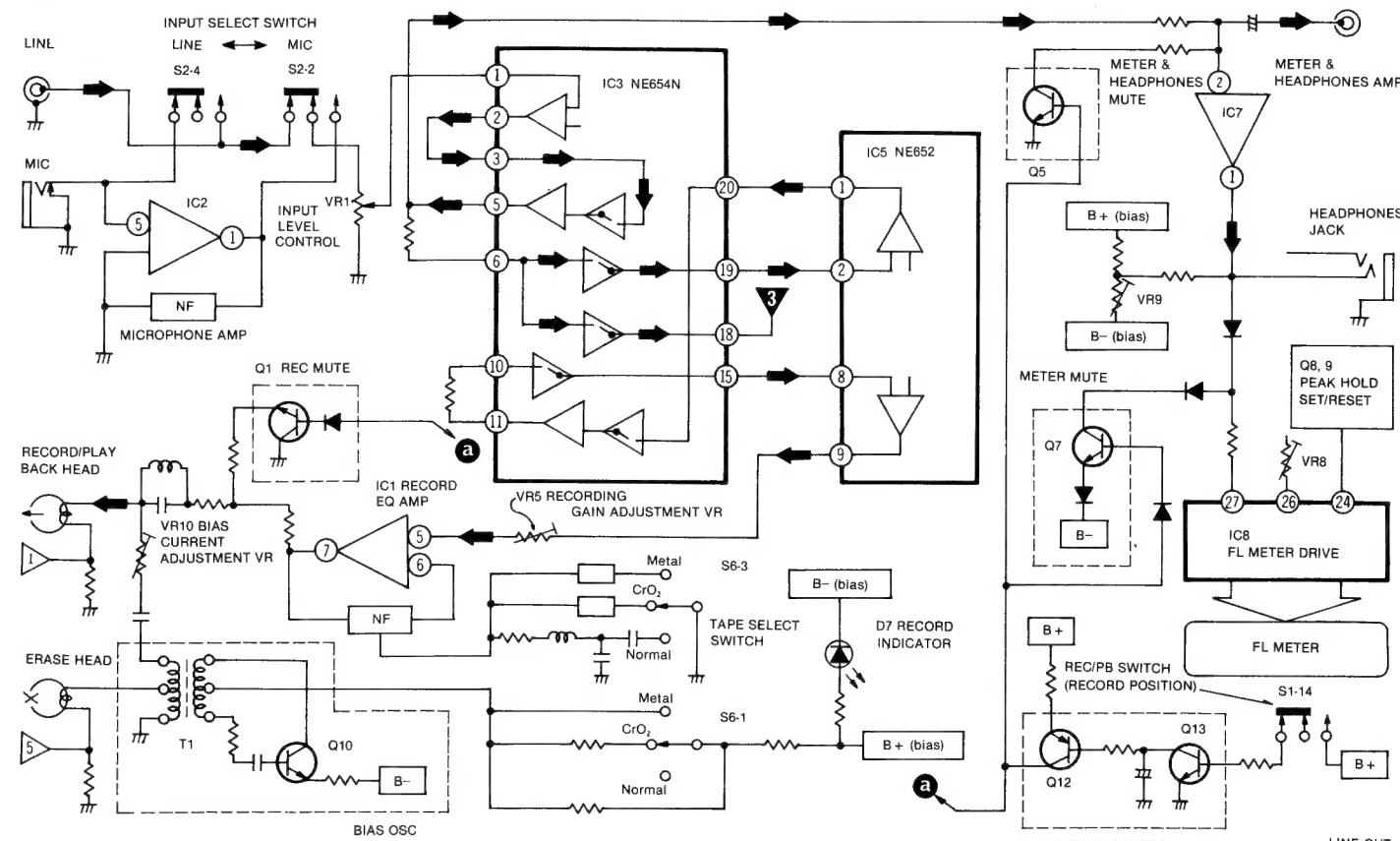
Important safety notice  
Components identified by  $\Delta$  mark have special characteristics important for safety.  
When replacing any of these components, use only manufacturer's specified parts.

Ref No.	Part No.	Part Name & Description	Ref No.	Part No.	Part Name & Description
<b>ELECTRICAL PARTS</b>			E 7	QJS1961S	Flat Cable Connector
E 1	QWY4122Z	Record/Playback Head	E 8	QJT1090	Pin Terminal-A (Test Point)
E 2	QWY2138Z	Erase Head	E 9	SJT777	Pin Terminal-B (AC Power Cord)
E 3	[D] $\Delta$ RJA23ZC	AC Power Cord	E 10	NO39	Heat Sink
	[For all European areas except United Kingdom.]		E 11	QJS1923TN	9 Pin Socket
	[B] $\Delta$ QFC1205M	AC Power Cord	E 12	QJT1054	Contact
	[For United Kingdom.]		E 13	QJS1921TN	3 Pin Socket
E 4	QSiFL006F	FL Meter	E 14	$\Delta$ QTF1054	Fuse Holder
E 5	QJP1921TN	3 Pin Post			
E 6	QJP1923TN	9 Pin Post			

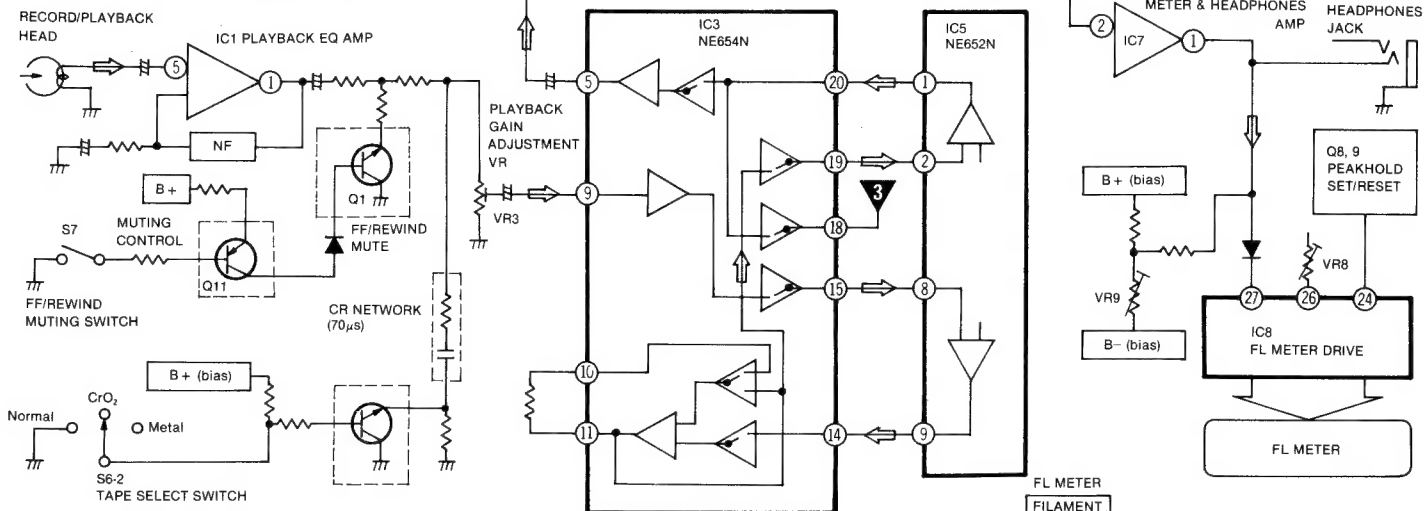


# BLOCK DIAGRAM

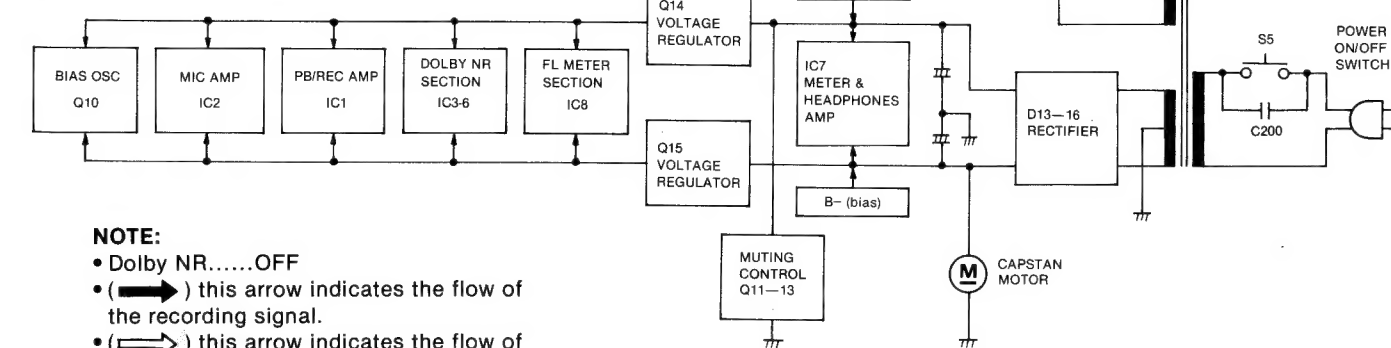
## Recording System (L-CH ONLY)



## Playback System (L-CH ONLY)



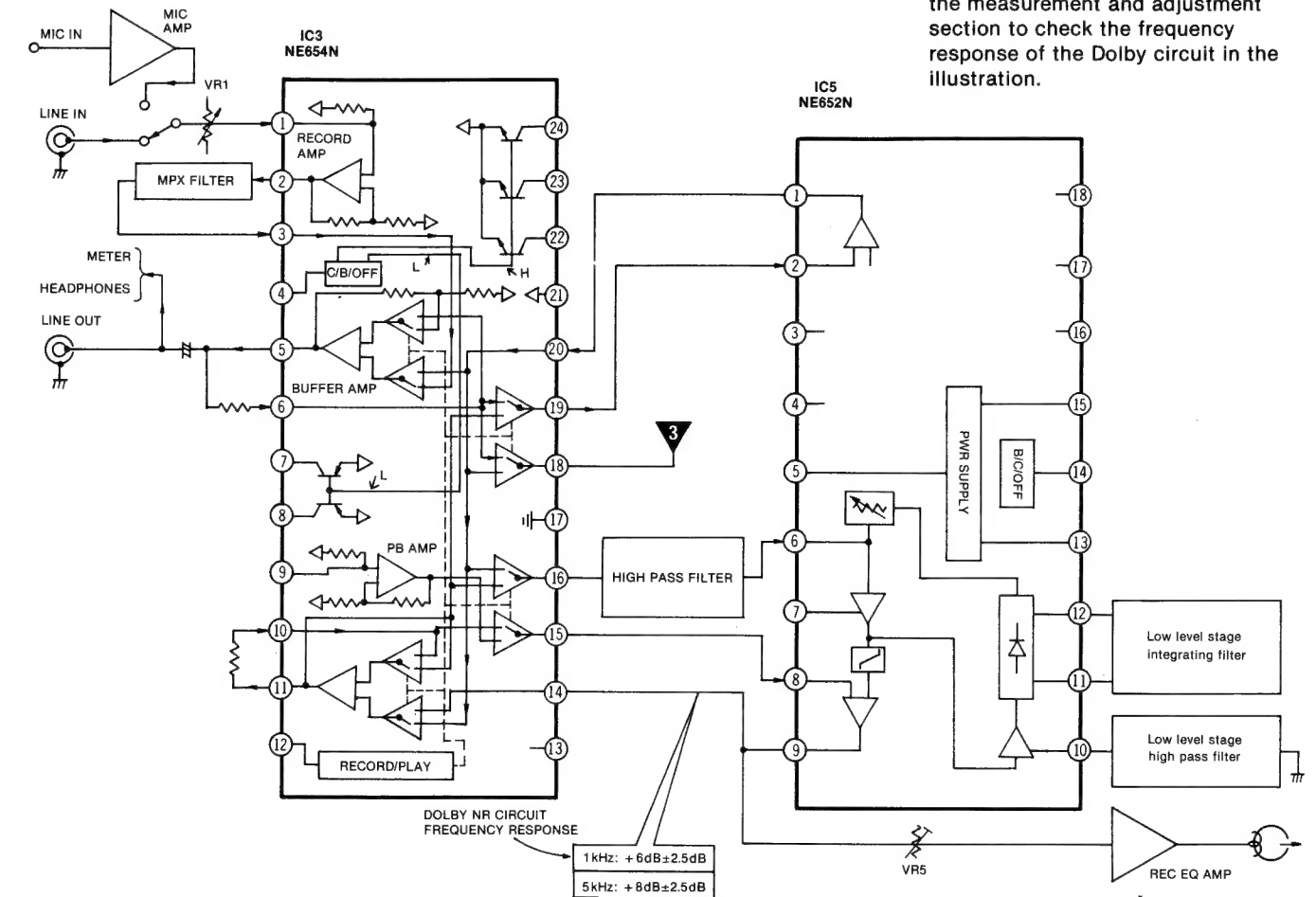
## Power Supply System



**NOTE:**  
 • Dolby NR.....OFF  
 • (→) this arrow indicates the flow of the recording signal.  
 • (⇄) this arrow indicates the flow of the playback signal.

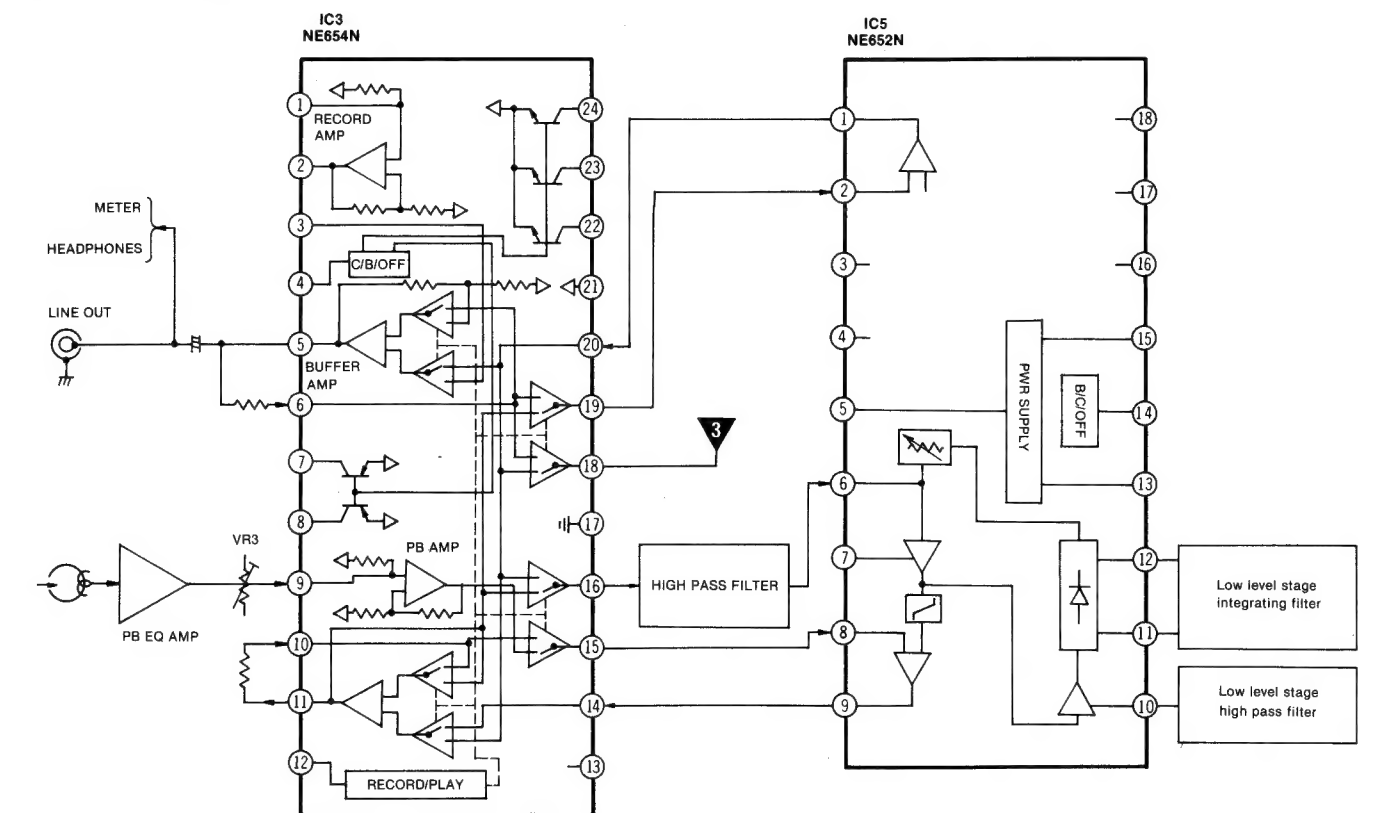
## DOLBY SYSTEM (L-CH ONLY)

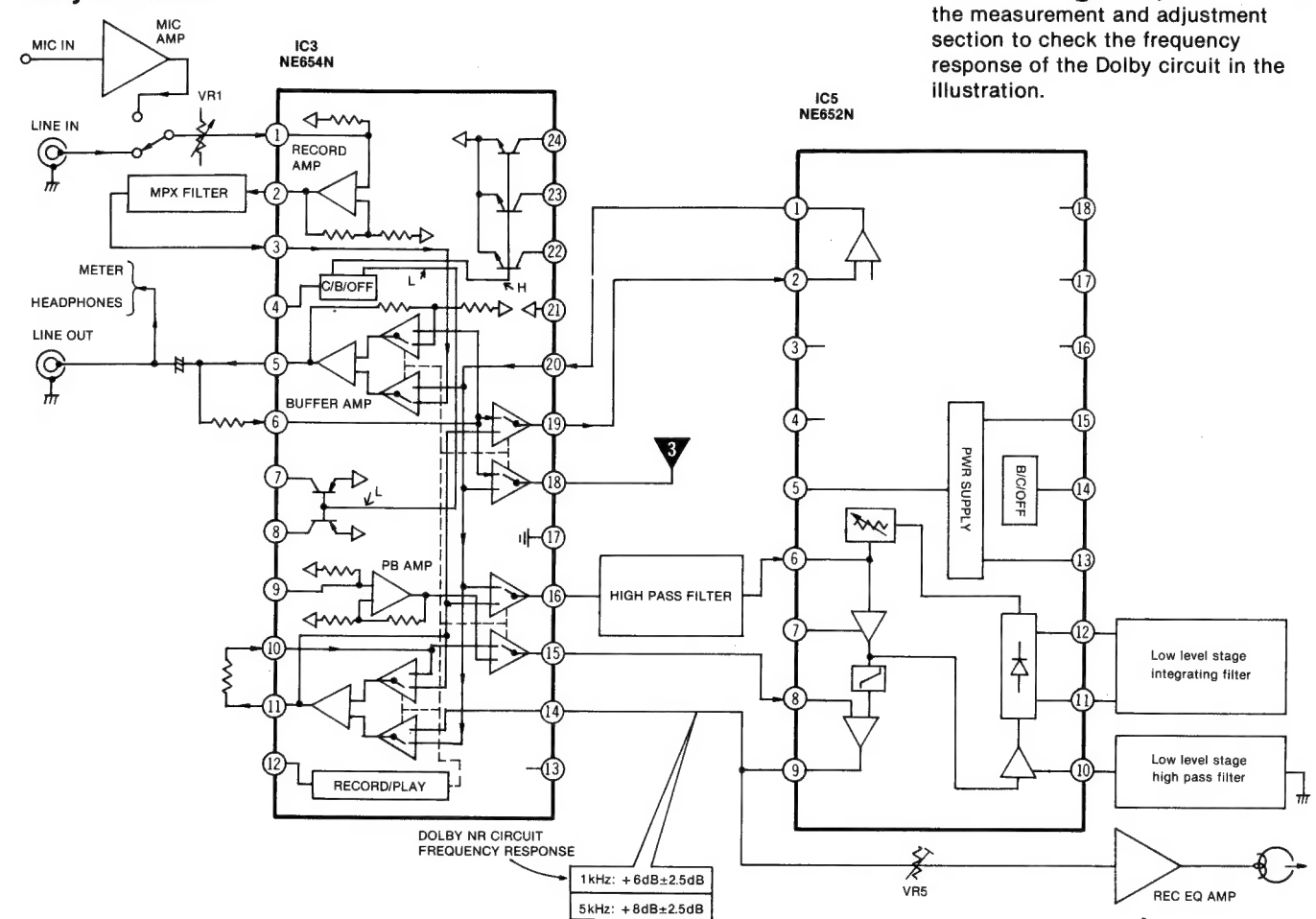
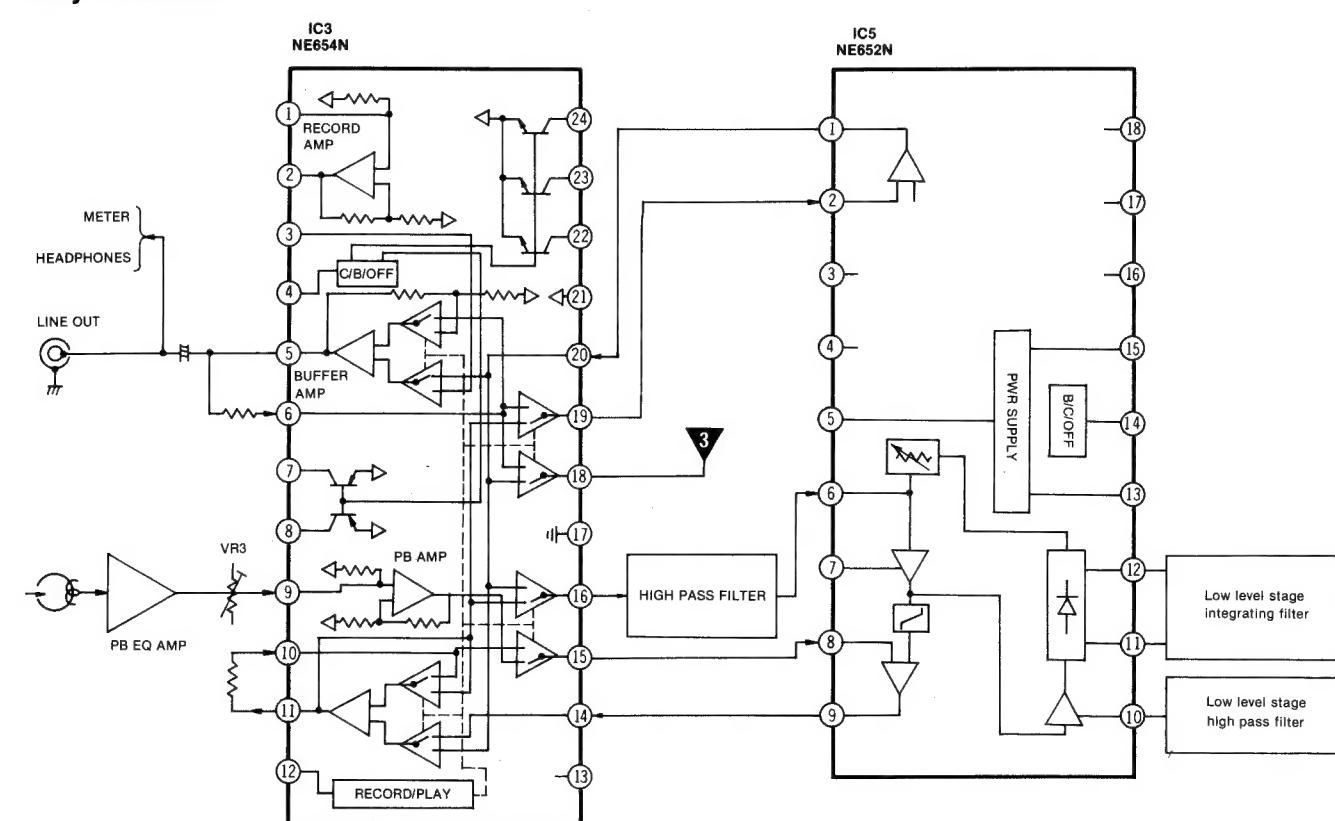
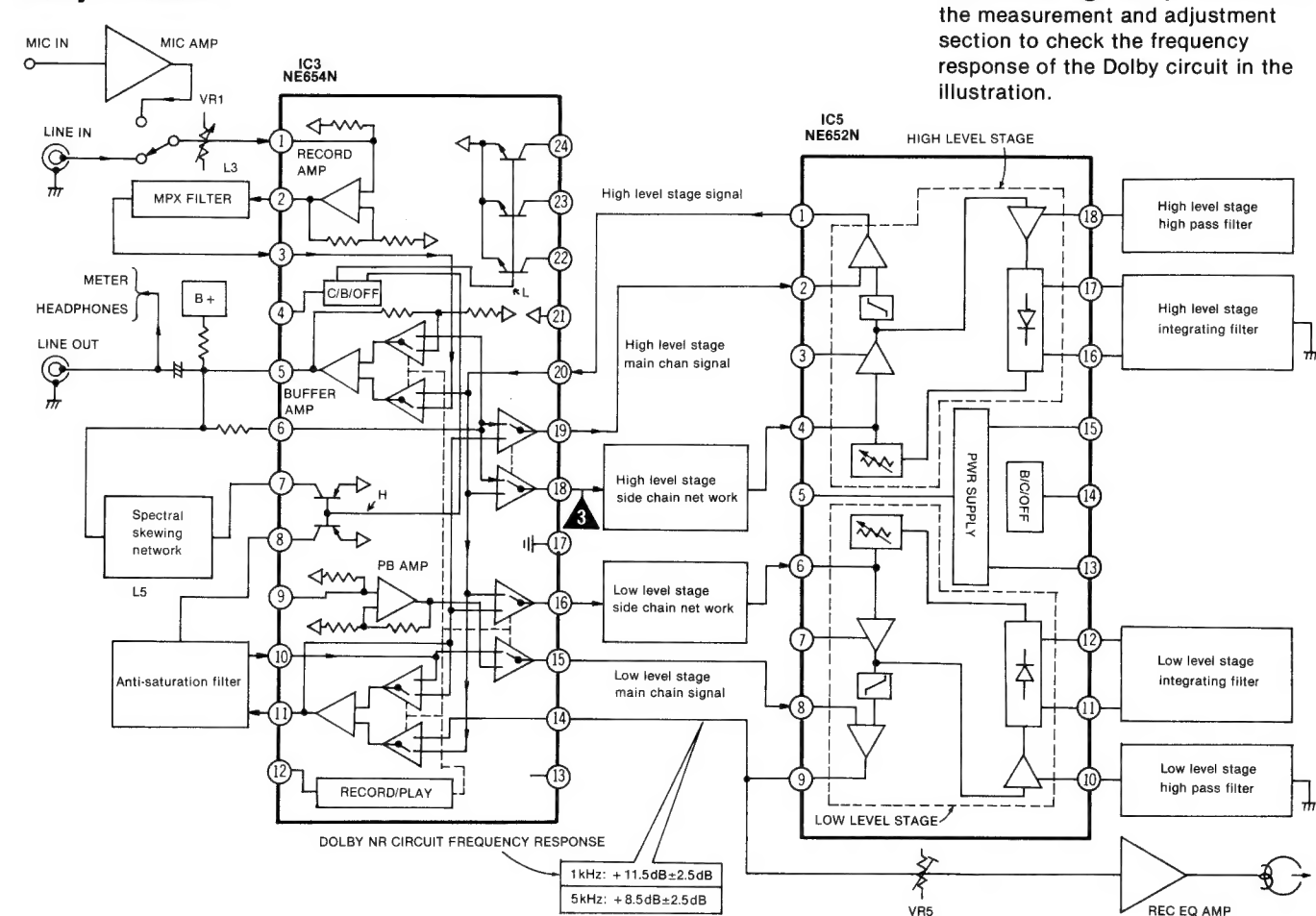
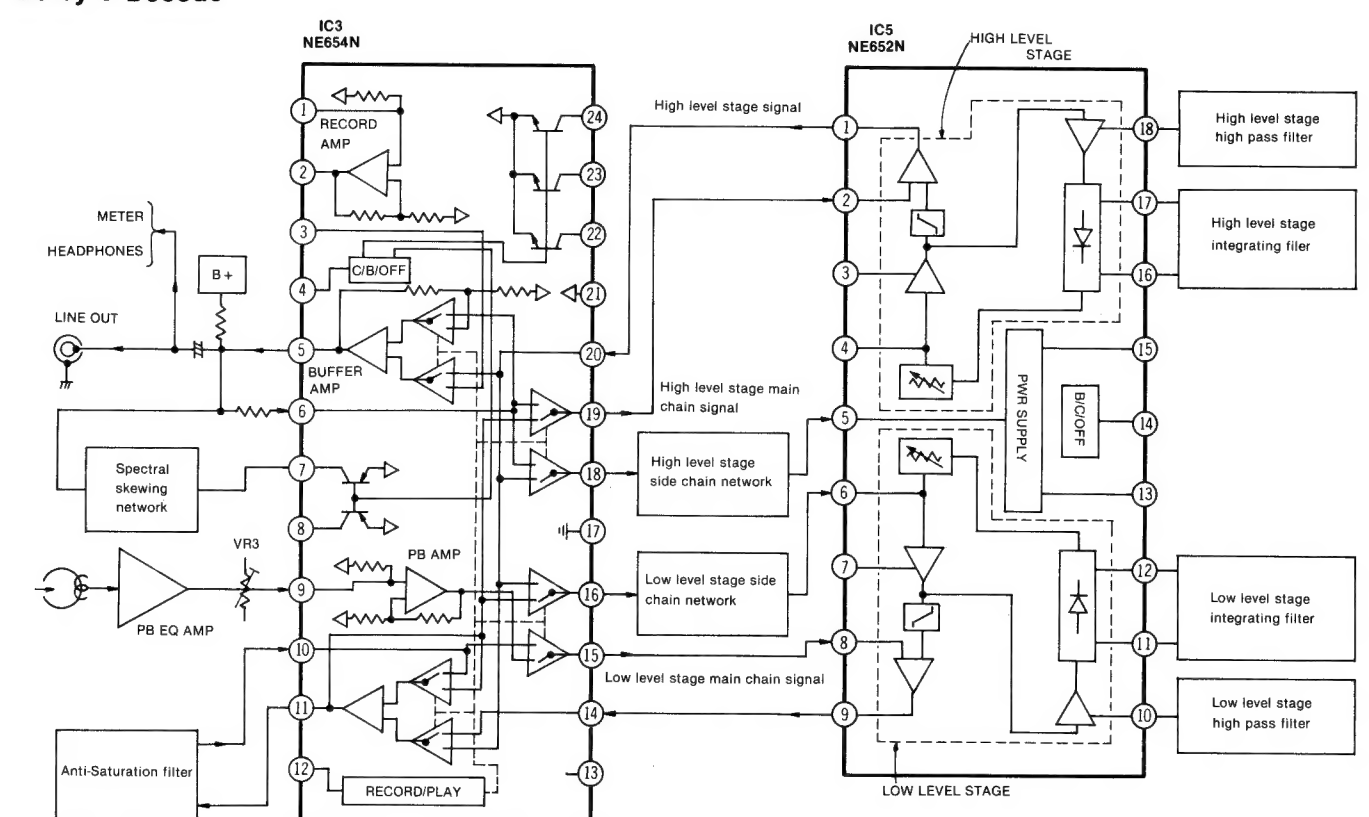
### Dolby-B Encode



Refer to Item ① "Dolby NR circuit" of the measurement and adjustment section to check the frequency response of the Dolby circuit in the illustration.

### Dolby-B Decode



**DOLBY SYSTEM (L-CH ONLY)****Dolby-B Encode****Dolby-B Decode****Dolby-C Encode****Dolby-C Decode**

## NOTES: RESISTORS

ERD .....Carbon  
ERG .....Metal-oxide  
ERS .....Metal-oxide  
ERO .....Metal-film  
ERX .....Metal-film  
ERQ .....Fuse type metallic  
ERC .....Solid  
ERF .....Cement

## CAPACITORS

ECBA .....Ceramic  
ECG .....Ceramic  
ECK .....Ceramic  
ECC .....Ceramic  
ECF .....Ceramic  
ECQM .....Polyester film  
ECQE .....Polyester film  
ECQP .....Polypropylene

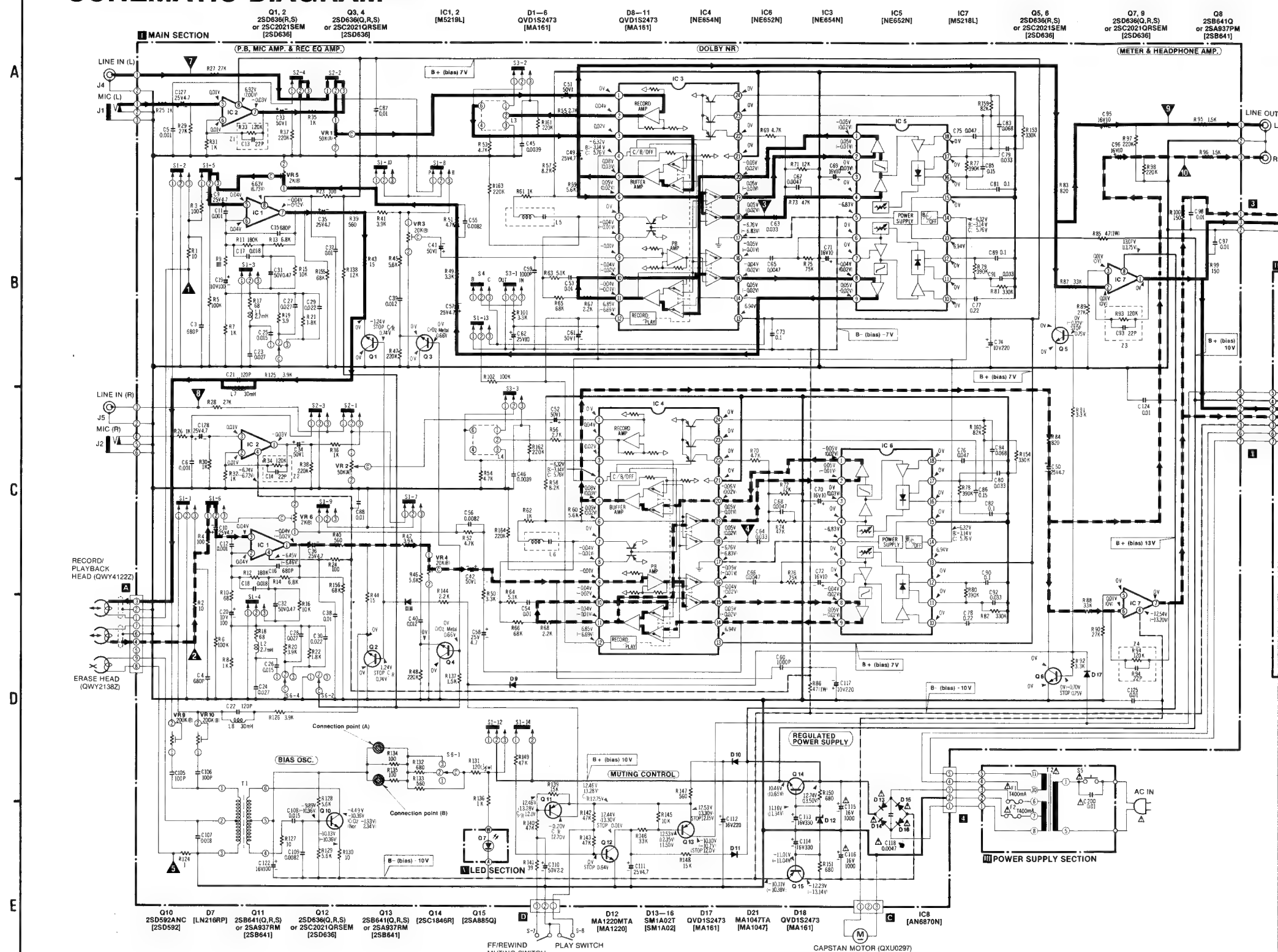
ECE .....Electrolytic  
ECEQ .....Non polar electrolytic  
EQS .....Polystyrene  
EQT .....Tantalum  
QCS .....Tantalum

## REPLACEMENT PARTS LIST

Important safety notice  
Components identified by  $\Delta$  mark have special characteristics important for safety.  
When replacing any of these components, use only manufacturer's specified parts.

Ref No.	Part No.	Ref No.	Part No.	Ref No.	Part No.	Ref No.	Part No.
<b>RESISTORS</b>							
R 1, 2	ERD25FJ100	R 132	ERD25FJ681	C 85, 86	ECQV05154JZ	Z 3 (R 93 and C 93)	EXP220K124T
R 3, 4	ERD25FJ101	R 133	ERD25FJ561	C 87, 88	ECKD1H103ZF	Z 4 (R 94 and C 94)	EXP220K124T
R 5, 6	ERD25TJ104	R 134, 135	ERD25FJ101	C 89, 90	ECQM1H104JZ		
R 7, 8	ERD25FJ102	R 136	ERD25FJ152	C 91, 92	ECQM1H333JZ		
R 9, 10	ERD25FJ680	R 137	ERD25FJ102	C 93 (22PF)	refer to Z 3		
R 11, 12	ERD25TJ184	R 138	ERD25TJ123	C 94 (22PF)	refer to Z 4		
R 13, 14	ERD25FJ682	R 139	ERD25TJ153	C 95, 96	ECEA1HS100		
R 15, 16	ERD25FJ103	R 140	ERD25TJ473	C 97, 98	ECKD1H103ZF		
R 17, 18	ERD25FJ680	R 141	ERD25FJ390	C 99, 100, 101, 102			
R 19, 20	ERD25FJ392						
R 21, 22	ERD25FJ182	R 142, 143	ERD25TJ473	C 103	ECEA50Z1		
R 23, 24	ERD25FJ101	R 144	ERD25FJ222	C 104	ECEA1HS100		
R 25, 26	ERD25FJ102	R 145	ERD25FJ103	C 105, 106	ECFDD473MXY		
R 27, 28, 29, 30	ERD25TJ273	R 146	ERD25TJ333	C 107	ECQD1H101K		
R 31, 32	ERD25FJ102	R 147	ERD25FJ561	C 108	ECQM1H153JZ		
R 33 (120K $\Omega$ )	refer to Z 1	R 148	ERD25TJ153	C 109	ECQM1H822JZ		
R 34 (120K $\Omega$ )	refer to Z 2	R 149	ERD25TJ473	C 110	ECEA50Z2R2		
R 35, 36	ERD25FJ102	R 150, 151	ERD25FJ681	C 111	ECEA25Z4R7		
R 37, 38	ERD25TJ224	R 152	ERD25FJ103	C 112	ECEA1CS221		
R 39, 40	ERD25FJ561	R 153, 154	ERD25TJ334	C 113, 114	ECEA1CS331		
R 41, 42	ERD25FJ392			C 115, 116			
R 43, 44	ERD25FJ150	R 155, 156	ERD25TJ683				
R 45, 46	ERD25FJ562	R 159, 160	ERD25TJ823				
R 47, 48	ERD25TJ224	R 161, 162, 163, 164					
R 49, 50	ERD25FJ332	R 165	ERD25TJ224				
R 51, 52, 53, 54		R 166	ERD25TJ683				
R 55, 56	ERD25FJ472						
R 57, 58	ERD25FJ272						
R 59, 60	ERD25FJ822						
R 61, 62	ERD25FJ102						
R 63, 64	ERD25FJ512						
R 65, 66	ERD25TJ683						
R 67, 68	ERD25FJ222						
R 69, 70	ERD25FJ472						
R 71, 72	ERD25TJ123						
R 73, 74	ERD25TJ473						
R 75, 76	ERD25TJ753						
R 77, 78, 79, 80	ERD25TJ394						
R 81, 82	ERD25TJ334						
R 83, 84	ERD25FJ821						
R 85, 86	ERG1ANJ470						
R 87, 88	ERD25TJ333						
R 89, 90	ERD25TJ273						
R 91, 92	ERD25FJ332						
R 93 (120K $\Omega$ )	refer to Z 3						
R 94 (120K $\Omega$ )	refer to Z 4						
R 95, 96	ERD25FJ152						
R 97, 98	ERD25TJ224						
R 99, 100	ERD25FJ151						
R 101	ERD25FJ332						
R 102	ERD25TJ104						
R 103, 104	ERD25TJ683						
R 105, 106	ERD25TJ473						
R 107, 108	ERD25TJ105						
R 109, 110	ERD25FJ102						
R 111	ERD25TJ153						
R 112	ERD25FJ103						
R 113	ERD25TJ683						
R 114	ERD25FJ222						
R 115	ERD25TJ684						
R 116	ERD25FJ471						
R 117	ERD25FJ472						
R 119	ERD25FJ182						
R 121	ERD25FJ103						
R 122, 123	ERD25FJ181						
R 124	ERD25FJ180						
R 125, 126	ERD25FJ392						
R 127	ERD25FJ100						
R 128, 129	ERD25FJ562						
R 130	ERD25FJ100						
R 131	ERD50FJ121						
C 3, 4	ECKD1H681KB						
C 5	ECKD1H102KB						
C 6	ECBS1H102KBY						
C 9, 10	ECEA25Z4R7						
C 11, 12	ECKD1H102KB						
C 13 (22PF)	refer to Z 1						
C 14 (22PF)	refer to Z 2						
C 15, 16	ECKD1H681KB						
C 17, 18	ECQM1H183JZ						
C 19, 20	ECEA1AS101						
C 21, 22	ECKD2H121KB						
C 23, 24	ECQM1H273JZ						
C 25, 26	ECQM1H153JZ						
C 27, 28	ECFDD273KXY						
C 29, 30	ECFDD223KXY						
C 31, 32	ECEA50Z4R7						
C 33, 34	ECEA50Z1						
C 35, 36	ECEA25Z4R7						
C 37, 38	ECKD1H103ZF						
C 39, 40	ECQM1H123JZ						
C 41, 42	ECEA50Z1						
C 45, 46	ECFDD392KVY						
C 49, 50	ECEA25Z4R7						
C 51, 52	ECEA50Z1						
C 53, 54	ECQM1H103JZ						
C 55, 56	ECQM1H822JZ						
C 57, 58	ECEA25Z4R7						
C 59, 60	ECKD1H102KB						
C 61	ECEA50Z1						
C 62	ECEA1HS100						
C 63, 64	ECQM1H333JZ						
C 65, 66, 67, 68	ECQM1H472JZ						
C 69, 70, 71, 72							
C 73	ECQM1H104JZ						
C 74	ECEA1AS221						
C 75, 76	ECQM1H473JZ						
C 77, 78	ECQV05224JZ						
C 79, 80	ECQM1H333JZ						
C 81, 82	ECQM1H104JZ						
C 83, 84	ECQM1H683JZ						
<b>COMBINATION PARTS</b>							
Z 1 (R 33 and C 13)	EXP220K124T						
Z 2 (R 34 and C 14)	EXP220K124T						
<b>VARIABLE RESISTORS</b>							
VR 1, 2	EWJS3AF22A54						
VR 3, 4	EVNM4AA00B24						
VR 5, 6	EVNM4AA00B23						
VR 7	EVNM4AA00B24						
VR 8	EVNM4AA00B14						
VR 9, 10	EVNM4AA00B25						
<b>COILS</b>							
L 1, 2	QLQX2721D	Peaking Coil					
L 3, 4	QLM929K	MPX Coil					
L 5, 6	ELM7Q306A	Combination Coil					
L 7, 8	QLQX0343KWA	Bias Trap Coil					
<b>TRANSFORMERS</b>							
T 1	QLB0198	Bias Oscillation Coil					
T 2							
[D] $\Delta$	QLPD68EKC	AC Power Transformer					
[For all European areas except United Kingdom.]							
[B] $\Delta$	QLPA65EKC	AC Power Transformer					
[For United Kingdom.]							
<b>FUSES</b>							
F 1, 2 $\Delta$	XBAQ0007	Fuse (T 400mA)					
<b>SWITCHES</b>							
S 1	QSSE203	Record/Playback Select Switch					
S 2, 3 and 4	QSWX312	Combination Switch (Input Select/Dolby SW/Dolby B-C Selector)					
S 5 $\Delta$	ESB822S	Push Switch (Power ON/OFF)					
S 6	QSR4306	Rotary Switch (Tape Select Switch)					
S 7	QSB0251	FF/Rewind Muting Switch					
S 8	QSB0251	Playback Switch					
<b>JACKS</b>							
J 1, 2	QJA0451	Microphone Jack					
J 3	QJA0259	Headphones Jack					
J 4, 5, 6, 7	QEJ5028S	Jack Board (Line IN/OUT)					

## SCHEMATIC DIAGRAM



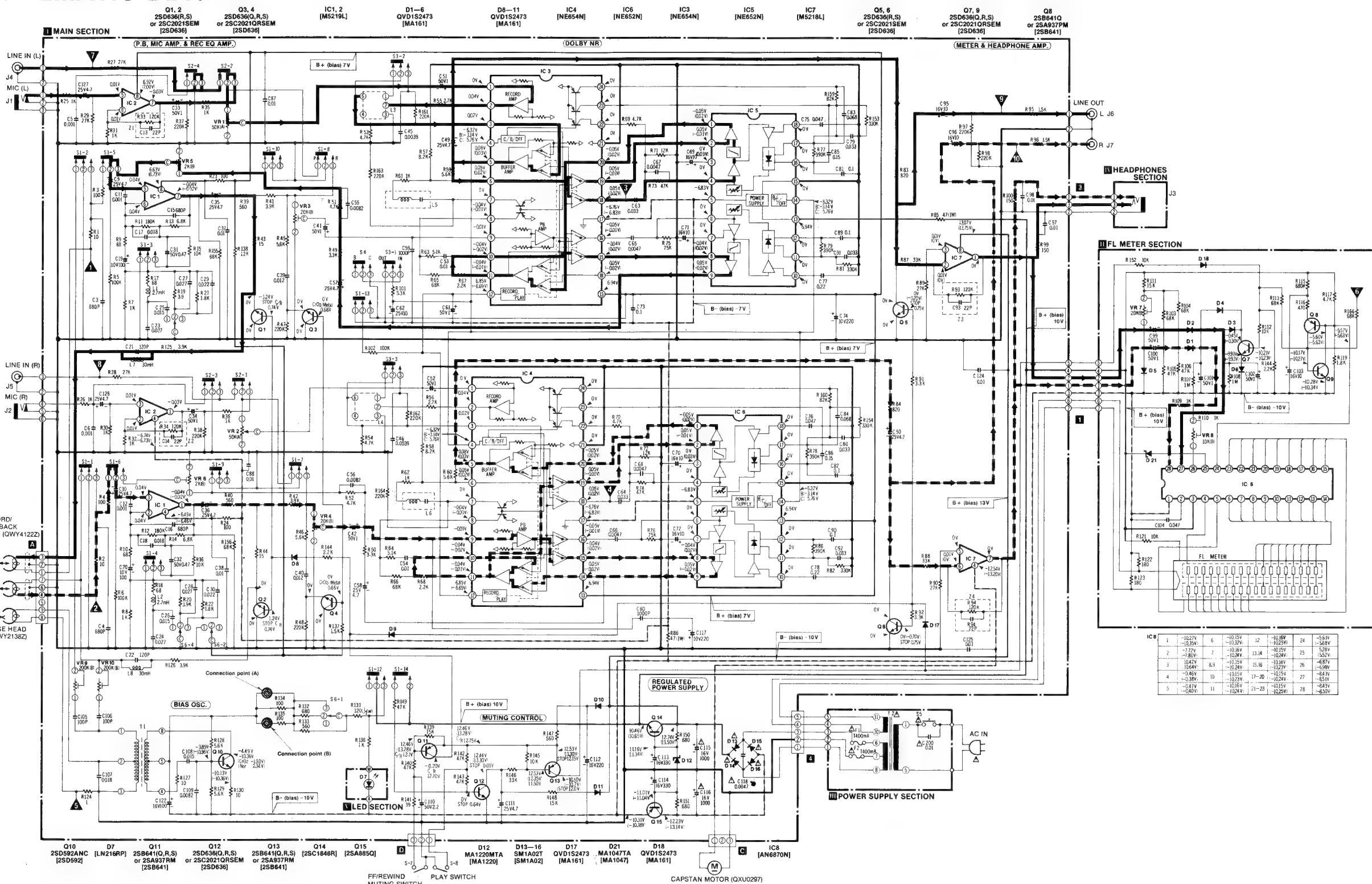
## NOTES:

- S1-1—S1-14.....Record/playback select switch (shown in playback position).
- S2-1—S2-4 .....Input select switch (shown in LINE IN position).
- S3-1—S3-3 .....Dolby NR/MPX filter IN/OUT select switch (shown in NR IN position).
- S4.....Dolby NR (B/C) select switch (shown in Dolby B position).
- S5.....Power ON/OFF switch.
- S6-1—S6-4 .....Tape select switch (shown in CrO<sub>2</sub> position).
- (1).....Normal, (2).....CrO<sub>2</sub>, (3).....Metal.
- S7.....FF/Rewind muting switch (shown in OFF position).
- S8.....Playback switch (shown in OFF position).
- VR1, 2 .....Input level controls.
- VR3, 4 .....Playback gain adjustment VR.
- VR5, 6 .....Recording gain adjustment VR.
- VR7 .....FL meter adjustment VR (for -20dB indication).
- VR8 .....FL meter adjustment VR (for 0dB indication).
- VR9, 10 .....Bias current adjustment VR.
- Connection points (A) and (B).....For erase current adjustment.
- Resistance are in ohms ( $\Omega$ ), 1/4 watt unless specified otherwise.
- K = 1,000 $\Omega$ , M = 1,000K $\Omega$ .
- Capacity are in microfarads ( $\mu$ F) unless specified otherwise.
- P = Pico-farads.
- The mark (▼) shows test point, e.g. ▼ = Test point 1.
- (▶) this arrow indicates the flow of the playback signal.
- (▶) this arrow indicates the flow of the recording signal.
- Important safety notice

Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

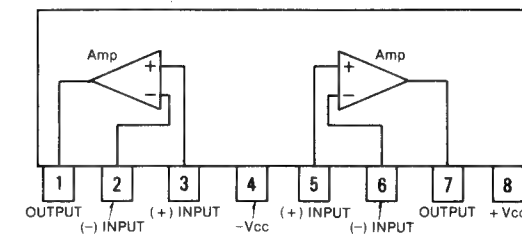


## SCHEMATIC DIAGRAM

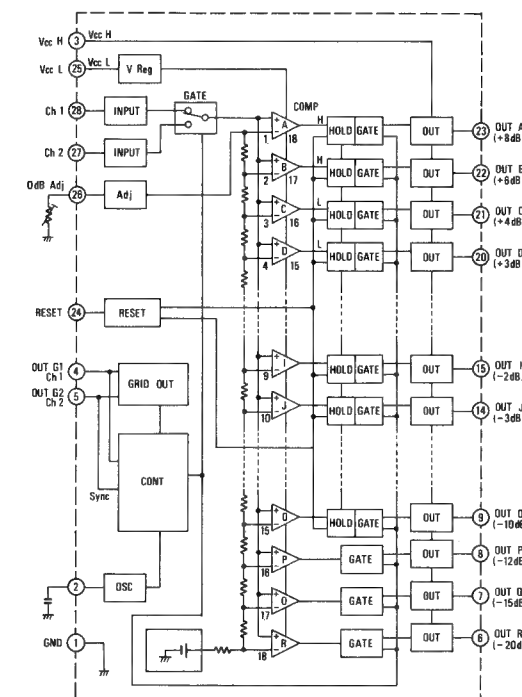


## EQUIVALENT CIRCUIT

IC1, 2 M5219L  
IC7 M5218L



IC8 AN6870



## SPECIFICATIONS : \* Input level controls...MAX

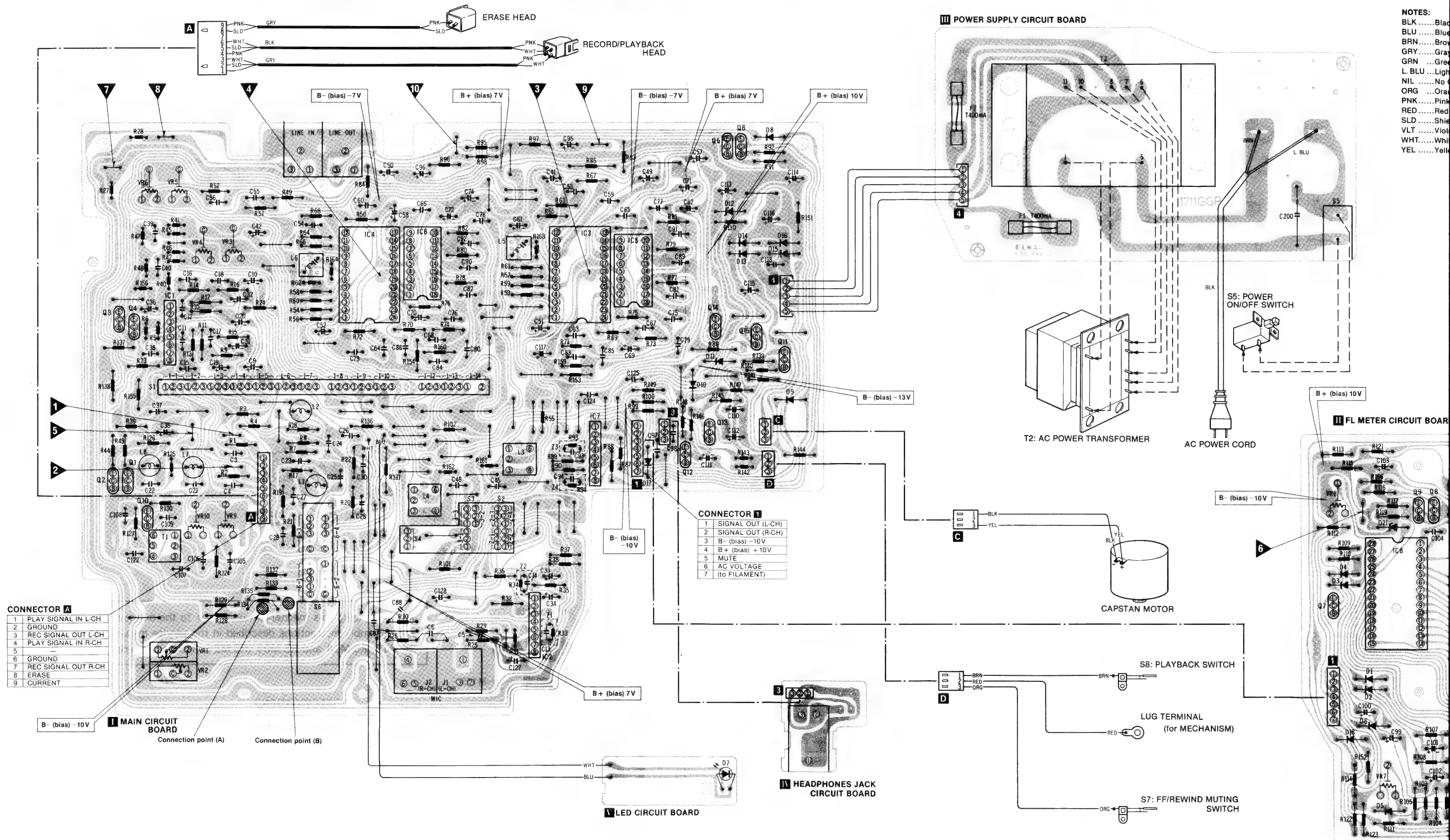
Playback S/N ratio Test tape... QZZCFM	Greater than 45 dB (without NAB filter)
Overall distortion Test tape ... QZZCRA for Normal ... QZZCRX for CrO <sub>2</sub> ... QZZCRZ for Metal	Less than 4%
Overall S/N ratio Test tape... QZZCRA	Greater than 43 dB

- All voltage values shown in circuitry are under no signal condition.
- Unless otherwise specified, voltage measurement conditions are that tape travels is at STOP, tape mode at NORMAL, and Dolby NR switch at OFF.
- REC.....Voltage at record mode.
- PLAY.....Voltage at playback mode.
- REC/PLAY.....Voltage at record/playback mode.
- Normal.....Voltage at Normal tape mode.
- CrO<sub>2</sub>.....Voltage at CrO<sub>2</sub> tape mode.
- Metal.....Voltage at Metal tape mode.
- STOP.....Voltage at STOP mode.
- C/R.....Voltage at Cue/Review mode.
- B.....Voltage at Dolby-B mode.
- C.....Voltage at Dolby-C mode.

- Described in the schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.
- e.g. Q1  
{2SB745(TMG, UMG)} ← Production parts number  
{2SB745T} ← Supply parts number
- The supply parts number is described alone in the replacement parts list.

- This schematic diagram may be modified at any time with the development of new technology.

# CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

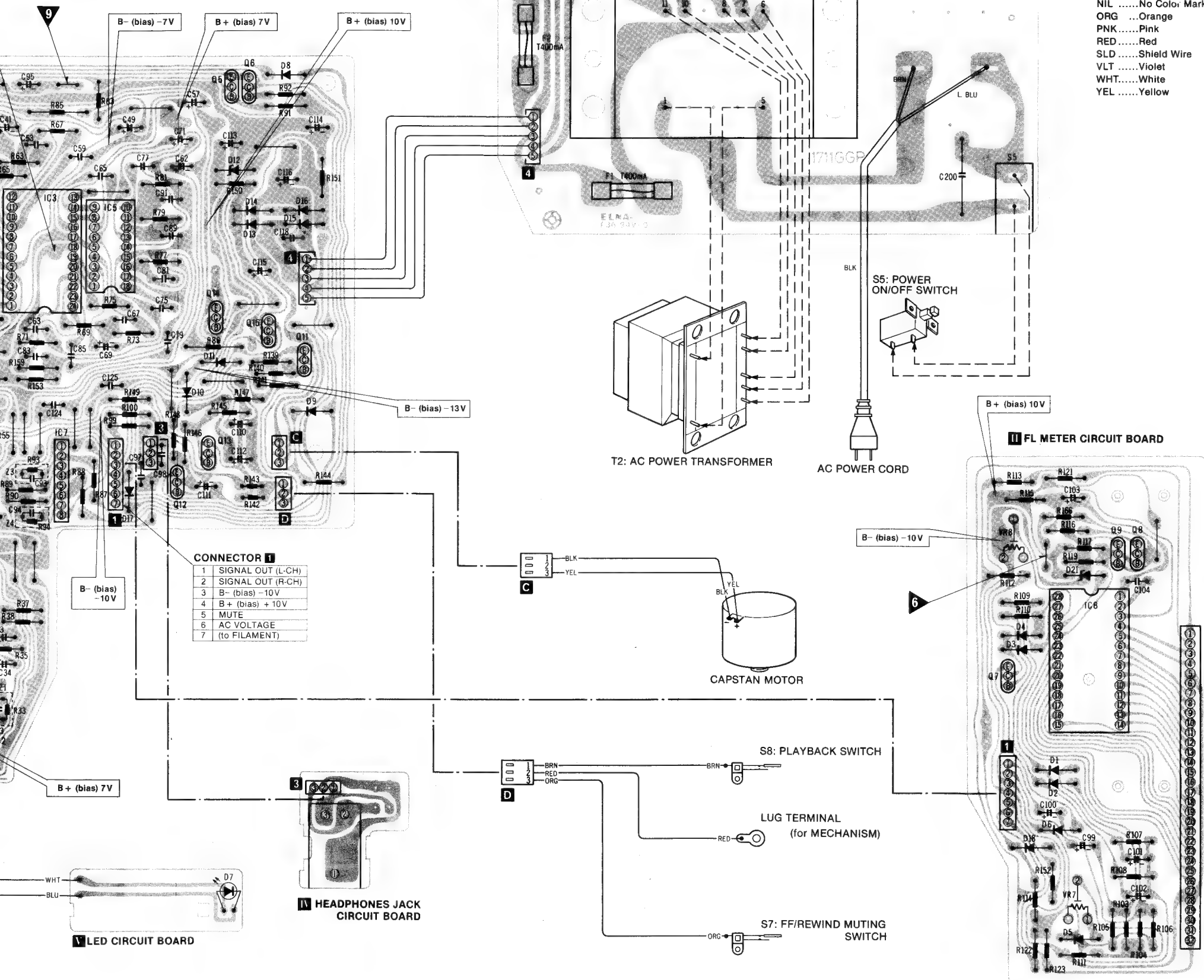




## DIAGRAM



RECORD/PLAYBACK HEAD



IC1 [M5219L]		IC2 [M5219L]		Q1, 2 [2SD636]	
1	-0.04V (-0.02V)	1	-0.03V (-0.03V)	B	-1.24V (-1.24V) STOP, C/R
2	0.04V (0.04V)	2	0.01V (0.01V)	C	0V (0V) 0.74V
3	0.04V (0.04V)	3	0.01V (0.01V)	E	0V (0V) 0V
4	-6.45V (-6.46V)	4	-6.74V (-6.73V)		
5	0.04V (0.04V)	5	0.01V (0.01V)	Q3, 4 [2SD636]	
6	0.04V (0.04V)	6	0.01V (0.01V)	B	0V (0V) CrO <sub>2</sub> , Metal
7	-0.04V (-0.02V)	7	-0.03V (-0.03V)	C	0V (0V) 0.66V
8	6.63V (6.73V)	8	6.92V (7.00V)	E	0V (0V) 0V

IC3, 4 [NE654N]		Q5, 6 [2SD636]		Q7 [2SD636]	
1	0V (0V)	13	6.94V (6.94V)	B	-10.21V (-10.23V)
2	0.04V (0.04V)	14	0.05V (-0.02V)	C	-0.45V (-0.30V)
3	0.02V (0.02V)	15	-0.04V (0.02V)	E	-9.91V (-9.93V)
4	-6.32V (-6.32V)	16	-0.05V (-0.01V)	Q8 [2SB641]	
5	0.08V (0.03V)	17	-6.76V (-6.83V)	B	-5.57V (-5.63V)
6	0.05V (0.02V)	18	0.05V (0.02V)	C	-10.17V (-10.27V)
7	0V (0V)	19	0.05V (-0.01V)	E	-
8	-0.04V (-0.01V)	20	-0.05V (0.02V)	Q9 [2SD636]	
9	-0.01V (-0.01V)	21	0V (0V)	B	-10.20V (-10.25V)
10	-0.04V (-0.02V)	22	0V (0V)	C	-5.60V (-5.63V)
11	-0.04V (-0.01V)	23	0V (0V)	E	-10.28V (-10.34V)
12	6.85V (-6.69V)	24	0V (0V)	Q10 [2SD592]	

IC5, 6 [NE652N]		Q11 [2SB641]		Q12 [2SD636]	
1	-0.05V (0.02V)	10	0V (0V)	B	0V (0V) STOP
2	0.05V (-0.01V)	11	0V (0V)	C	12.44V (13.30V) 0.64V
3	0V (0.03V)	12	0V (0V)	E	0V (0V) 0V
4	0V (0V)	13	6.94V (6.94V)	Q13 [2SB641]	
5	-6.83V (-6.83V)	14	-6.32V (-6.32V)	B	12.53V (12.35V) STOP
6	0V (0V)	15	0V (0V)	C	-10.0V (-10.7V) 11.50V
7	0V (0V)	16	0V (0V)	E	12.53V (13.30V) 12.15V
8	-0.04V (0.02V)	17	0V (0V)	Q14 [2SC1846R]	
9	0.05V (-0.02V)	18	0V (0V)	B	11.16V (11.34V)

IC7 [M5218L]		Q15 [2SA885Q]	
1	0V (0V)	B	-11.01V (-11.04V)
2	0.01V (0V)	C	-12.23V (-13.14V)
3	0.01V (0V)	E	-10.31V (-10.38V)
4	-12.54V (-13.20V)		
5	0V (0V)		
6	0.01V (0V)		
7	0V (0V)		
8	13.07V (13.75V)		

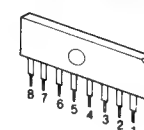
  

IC8 [AN6870N]	
1	-10.27V (-10.35V)
2	-7.72V (-7.80V)
3	10.42V (10.64V)
4	-0.46V (-0.38V)
5	-0.47V (-0.40V)
6	-10.15V (-10.32V)
7	-10.16V (-10.24V)
8	-10.15V (-10.24V)
9	-10.15V (-10.24V)
10	-10.15V (-10.23V)
11	-10.16V (-10.24V)
12	-10.16V (-10.25V)
13	-10.15V (-10.24V)
14	-10.15V (-10.24V)
15	-10.14V (-10.23V)
16	-10.14V (-10.23V)
17	-10.15V (-10.24V)
18	-10.15V (-10.24V)
19	-10.15V (-10.24V)
20	-10.15V (-10.24V)
21	-10.15V (-10.25V)
22	-10.15V (-10.25V)
23	-10.15V (-10.25V)
24	-5.61V (-5.68V)
25	5.28V (5.52V)
26	-6.87V (-6.98V)
27	-8.43V (-8.51V)
28	-8.43V (-8.50V)

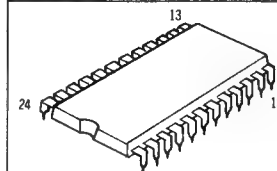
- NOTES:**
- The circuit shown in [ ] on the onductor indicates printed circuit on the back side of the printed circuit board.
  - Values indicated in [ ] are under no signal condition.
- Unless otherwise specified, voltage measurement conditions are the tape travel is at STOP, tape mode at NORMAL, and Dolby NR switch at OFF.
- REC .....Voltage at record mode.  
 PLAY .....Voltage at playback mode.  
 REC/PLAY .....Voltage at record/playback mode.  
 Normal .....Voltage at Normal tape mode.  
 CrO<sub>2</sub> .....Voltage at CrO<sub>2</sub> tape mode.  
 Metal .....Voltage at Metal tape mode.  
 STOP .....Voltage at STOP mode.  
 C/R .....Voltage at Cue/Review mode.  
 B .....Voltage at Dolby-B mode.  
 C .....Voltage at Dolby-C mode.
- For measurement, use VTVM.
- The supply parts number is described alone in the replacement parts list.

This circuit board diagram may be modified at any time with the development of new technology.

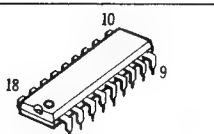
## TERMINATIONS



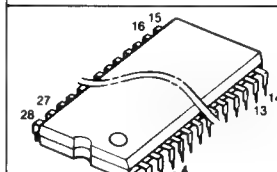
IC1, 2, 7



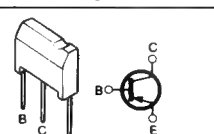
IC3, 4



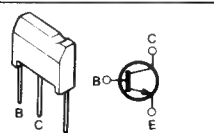
IC5, 6



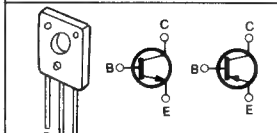
IC8



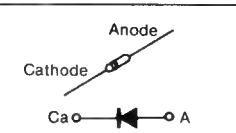
Q1-7, 9, 10, 12



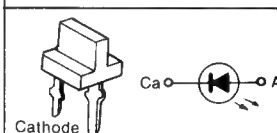
Q8, 11, 13



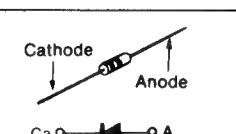
Q14, Q15



D1-6, 8-11, 17, 18



D7



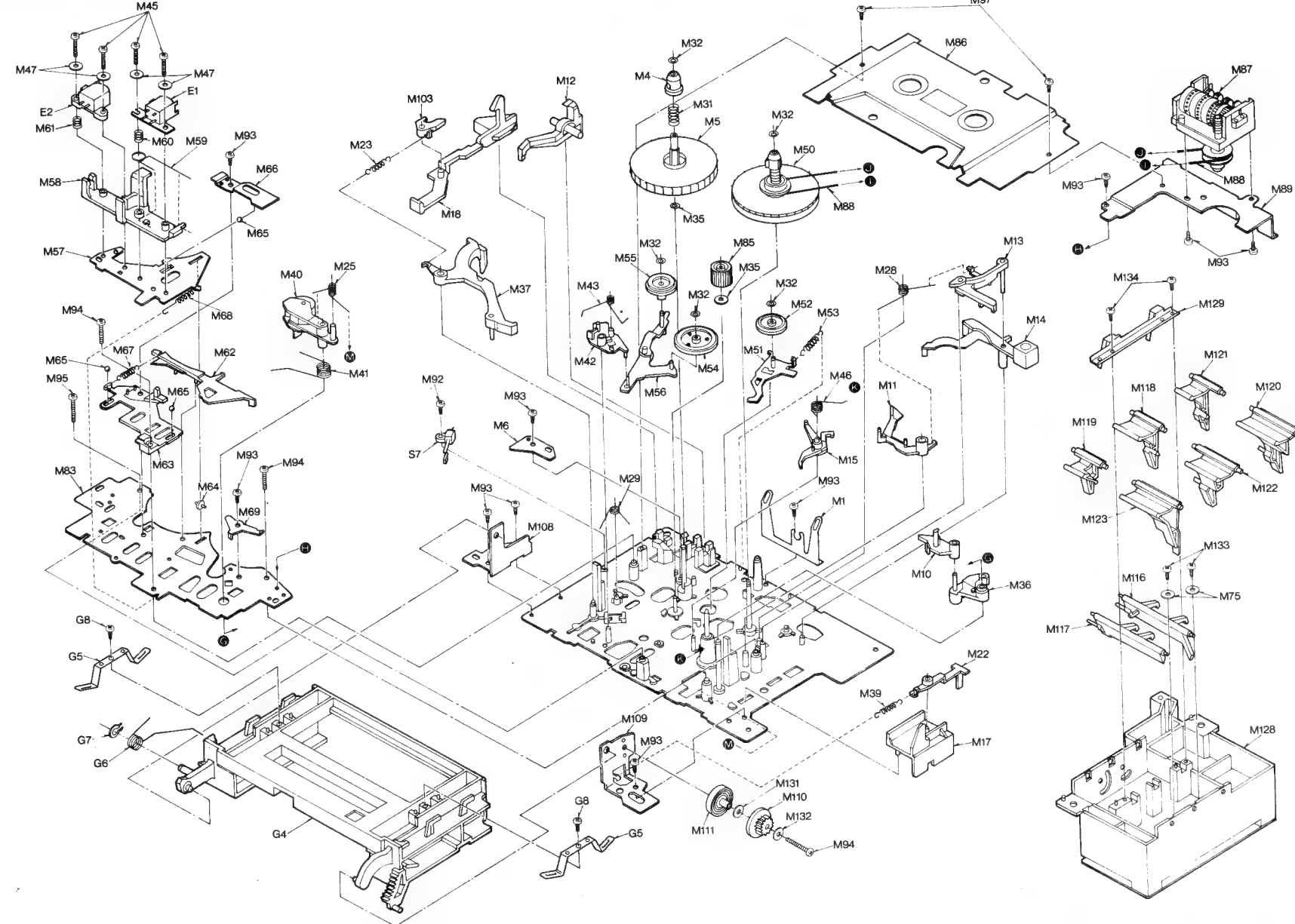
D13-16

REPLACEMENT PARTS LIST

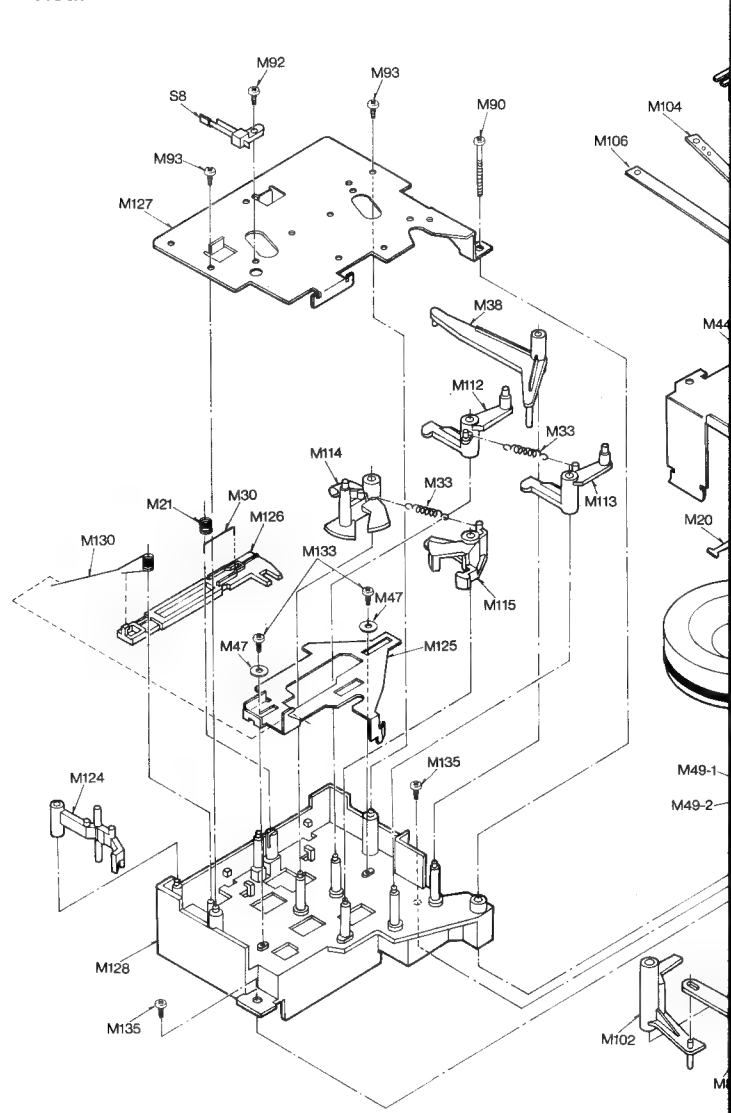
Ref No.	Part No.	Part Name & Description
<b>MECHANICAL PARTS</b>		
A	M 1	QBP1874 Cassette Pressure Spring
	M 2	QDG1201 Main Gear
	M 3	QDG1202 Sub Gear
	M 4	QMB1336 Supply Reel Table Hub
	M 5	QDR1139 Supply Reel Table
	M 6	QMF2118 Fast Forward Arm Bracket
	M 7	QML3899 Sub Control Lever
	M 8	QML3898 Main Control Lever
	M 9	QML3900 Record Operation Lever
	M 10	QML3586 Head Base Plate Lift Lever
	M 11	QML3594 Auto-Stop Release Arm
	M 12	QML3603 Erase Safety Lever
	M 13	QML3604 Auto-Stop Driving Lever
	M 14	QML3605 Auto-Stop Detection Lever
	M 15	QML3592 Change Lever
	M 16	QMR2013 Record Rod
	M 17	QMR2011 Auto-Stop Connection Rod
	M 18	QMR2014 Eject Rod
	M 19	QMR2012 Control Rod
	M 20	QNZ1283 Flywheel Thrust Retainer
	M 21	QBC1357 Lock Pin Pressure Spring
	M 22	QML3896 Auto-Stop Selection Lever
	M 23	QBT1962 Main Lever Spring
	M 24	QBN1739 Selection Lever Spring
	M 25	QBN1742 Pressure Roller Release Spring
	M 26	QBN1744 Sub Gear Spring
	M 27	QBN1897 Main Gear Spring
	M 28	QBN1746 Auto-Stop Lever Spring
	M 29	QBN1747 Connection Spring
	M 30	QBS1137 Pause Lock Pin
	M 31	QBC1372 Reel Table Spring
	M 32	QBW2008 Poly Washer
	M 33	QBT1961 Operating Change Lever Spring
	M 34	XUB3FT Stop Ring 3ø
	M 35	QBW2012 Poly Washer
	M 36	QXL1354 Sub Lever Assembly
	M 37	QXL1355 Main Lever Assembly
	M 38	QML3882 Pause Change Lever
	M 39	QBT1682 Lock Retainer Spring
	M 40	QXL1381 Pressure Roller Assembly
	M 41	QBN1743 Pressure Roller Spring
	M 42	QML3588 Fast Forward Lever
	M 43	QBN1748 Fast Forward Spring
	M 44	QMA4410 Flywheel Retainer
	M 45	XSN2 + 10 Screw Ø2x10
	M 46	QBN1741 Change Lever Spring
	M 47	XWG28 Washer 2ø
	M 48	QNZ1254 Cord Clamper
	M 49	QXF0199 Flywheel Assembly
	M 49-1	QBW2049 Poly Washer
	M 49-2	QBW2026 Snap Ring
	M 50	QXD1143 Takeup Reel Table Assembly
	M 51	QXL1382 Idler Lever Assembly
	M 52	QXI0111 Takeup Idler Assembly
	M 53	QBT1893 Takeup Idler Spring
	M 54	QXI0113 Fast Forward Idler Assembly
	M 55	QXI0112 Rewind Idler Assembly
	M 56	QXL1383 Fast Forward Arm Assembly
	M 57	QMK1840 Head Base Plate Assembly
	M 58	QML2141 Head Spacer
	M 59	QBN1740 Head Pressure Spring
	M 60	QBC1278 Head Spring
	M 61	QBCA0008 Head Spring
	M 62	QML3591 Brake Arm
	M 63	QML2140 Sub Head Base Plate
	M 64	QMN2550 Roller
	M 65	QDK1017 Steel Ball 2ø
	M 66	QBP1873 Head Base Plate Pressure Spring
	M 67	QBT1597 Brake Arm Spring
	M 68	QBT1892 Head Release Spring
	M 69	QMA3858 Head Adjustment Plate
	M 70	QZK0241 Takeup Gear Assembly
	M 71	QXU0297 Motor Assembly
	M 72	QXK2286 Sub Chassis Assembly
	M 73	QDG1199 Auto-Stop Gear
	M 74	QDG1200 Cam Gear
	M 75	XWG2 Washer 2ø
	M 76	QDB0324 Capstan Belt
	M 77	QDB0274 Takeup Belt

MECHANICAL PARTS LOCATION

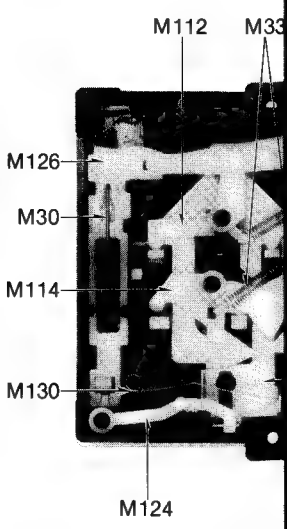
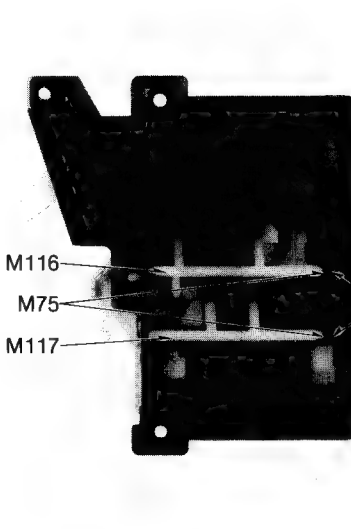
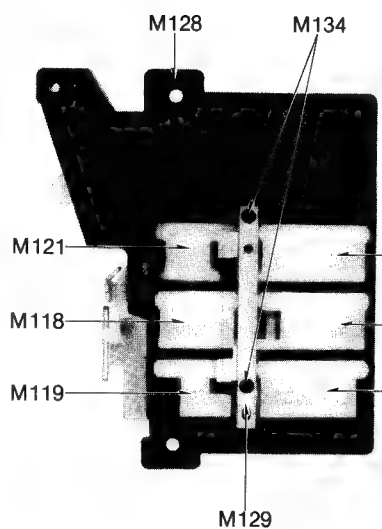
• Front View



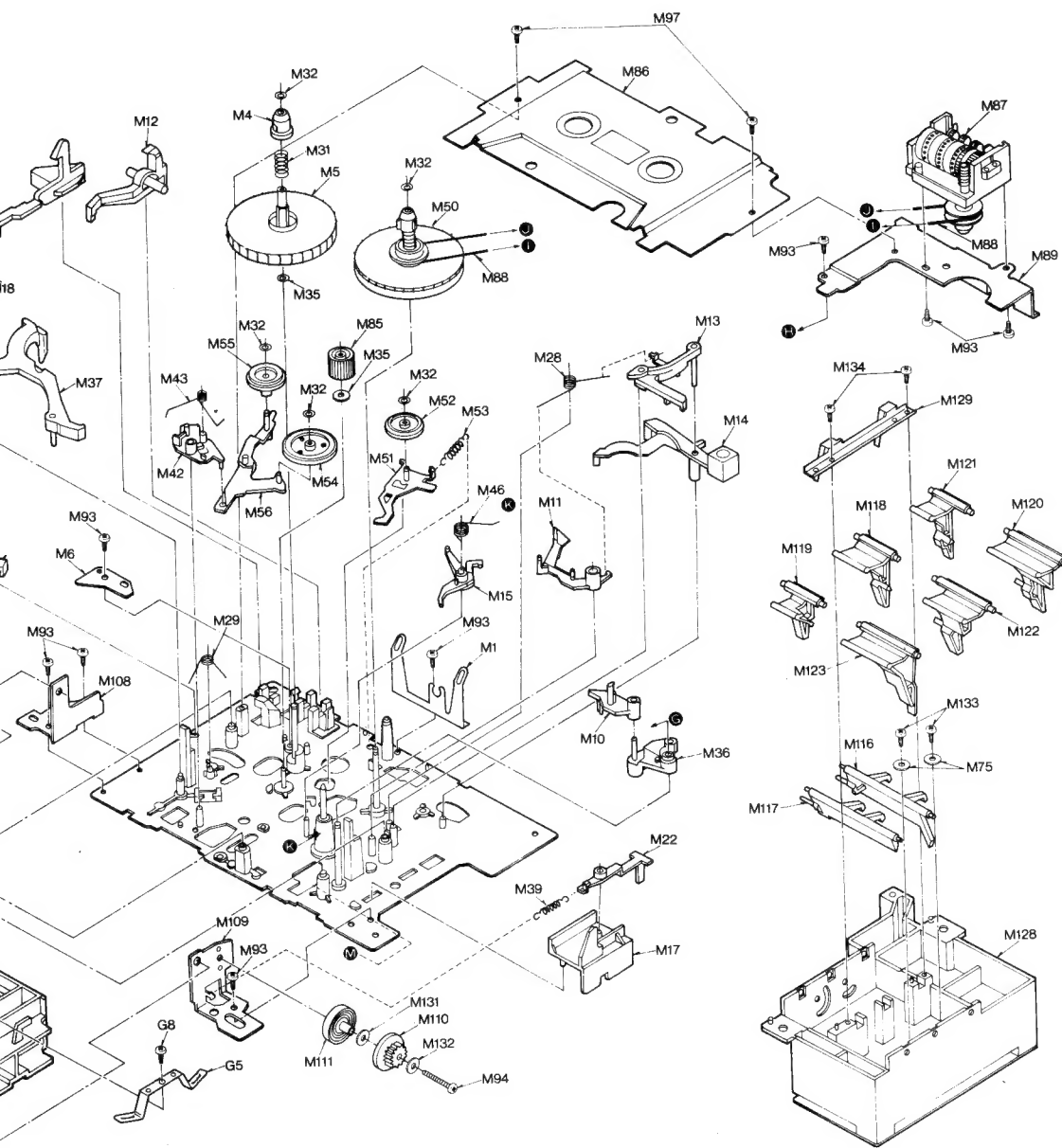
• Rear View



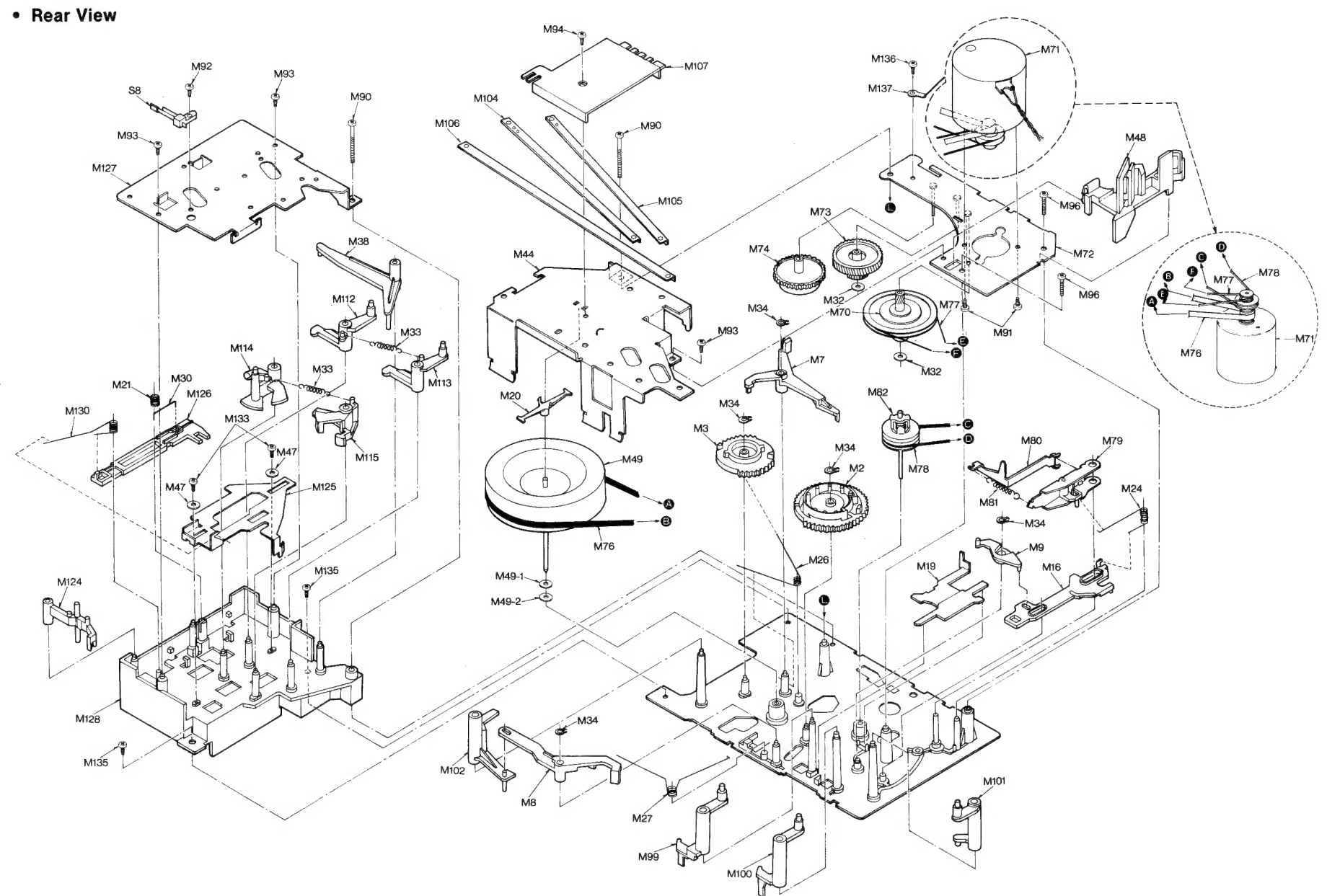
Ref No.	Part No.	Part Name & Description	Ref No.	Part No.	Part Name & Description	Ref No.	Part No.	Part Name & Description
M 78	QDB0273	Fast Forward Belt	M 97	XTN26 + 5BFZ	Tapping Screw Ø2.6x5	M 117	QML3884	Lock Arm-B
M 79	QXL1360	Record/Playback Selection Arm Assembly	M 99	QML3885	Fast Forward Driving Lever	M 118	QML3888	Play Lever
M 80	QML3580	Record/Playback Selection Lever	M 100	QML3886	Rewind Driving Lever	M 119	QML3889	Stop lever
M 81	QBT1895	Record/Playback Selection Lever Spring	M 101	QML3887	Record Driving Lever	M 120	QML3890	Fast Forward Lever
M 82	QXP0607	Fast Forward Connection Pulley Assembly	M 102	QML3897	Play Changing Lever	M 121	QML3891	Rewind Lever
M 83	QMK1838	Upper Base Plate	M 103	QML3901	Eject Obstruction Lever	M 122	QML3892	Record Lever
M 84	QDP1828	Fast Forward Pulley	M 104	QMR2007	Fast Forward Connection Plate	M 123	QML3893	Pause Lever
M 85	QXH0408	Chassis Cover Assembly	M 105	QMR2008	Rewind Connection Plate	M 124	QML3894	Muting Lever
M 86	QDC0126	Tape Counter	M 106	QMR2009	Record Connection Plate	M 125	QMR2006	Fast Wind Rod
M 87	QDB0169	Counter Belt	M 107	QNZ1288	Connection Plate Retainer	M 126	QMR2010	Pause Rod
M 88	QMA4439	Counter Angle	M 108	QMA4411	Holding Angle-L	M 127	QMF2245	Operating Button Plate
M 89	QMA4439	Counter Angle	M 109	QMA4412	Holding Angle-R	M 128	QKJ0537	Operating Button Frame
M 90	XTN3 + 24B	Tapping Screw Ø3x24	M 110	QDG1254	Damper Gear	M 129	QBP1953	Operating Lever Spring
M 91	XSN26 + 3	Screw Ø2.6x3	M 111	QDP1920	Damper Retainer	M 130	QBN1898	Fast Wind Rod Spring
M 92	XTN2 + 6B	Tapping Screw Ø2x6	M 112	QML3878	Fast Forward Change Lever	M 131	QBW2020	Washer
M 93	XTN26 + 6B	Tapping Screw Ø2.6x6	M 113	QML3879	Rewind Change Lever	M 132	XWG26	Washer 2.6ø
M 94	XTN26 + 10B	Tapping Screw Ø2.6x10	M 114	QML3880	Record Change Lever	M 133	XTN2 + 5B	Tapping Screw Ø2x5
M 95	XTN26 + 12B	Tapping Screw Ø2.6x12	M 115	QML3881	Play Change Lever	M 134	XTN2 + 4BFZ	Tapping Screw Ø2x4
M 96	XTN3 + 10B	Tapping Screw Ø3x10	M 116	QML3883	Lock Arm-A	M 135	XTN3 + 6B	Tapping Screw Ø3x6



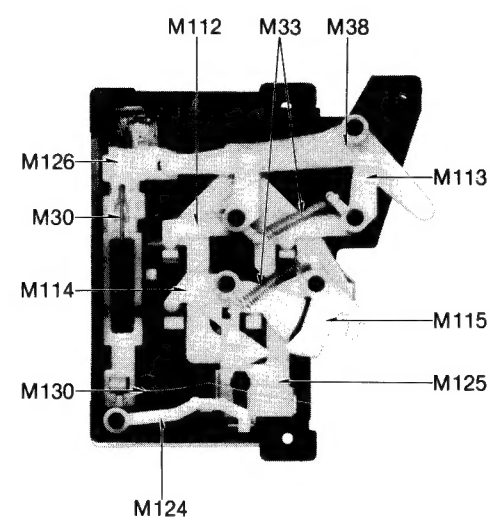
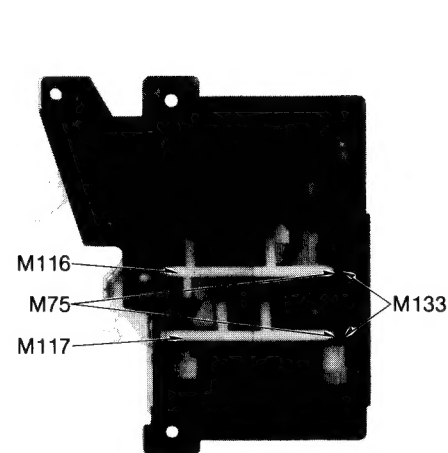
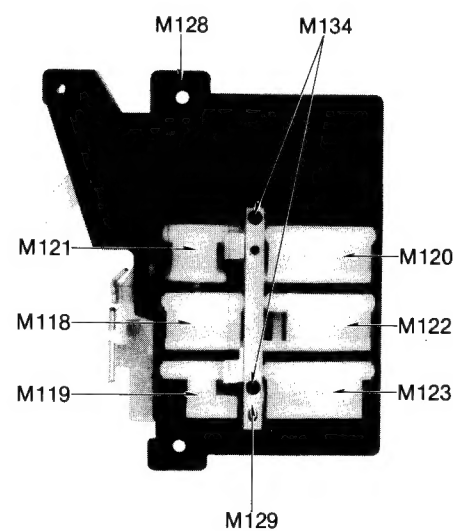




## • Rear View



Part Name & Description	Ref. No.	Part No.	Part Name & Description
Locking Screw $\phi 2.6 \times 5$	M 117	QML3884	Lock Arm-B
Fast Forward Driving Lever	M 118	QML3888	Play Lever
Fast Forward Driving Lever	M 119	QML3889	Stop lever
Fast Forward Driving Lever	M 120	QML3890	Fast Forward Lever
Fast Forward Driving Lever	M 121	QML3891	Rewind Lever
Fast Forward Driving Lever	M 122	QML3892	Record Lever
Fast Forward Driving Lever	M 123	QML3893	Pause Lever
Fast Forward Driving Lever	M 124	QML3894	Muting Lever
Fast Forward Driving Lever	M 125	QMR2006	Fast Wind Rod
Fast Forward Driving Lever	M 126	QMR2010	Pause Rod
Fast Forward Driving Lever	M 127	QMF2245	Operating Button Plate
Fast Forward Driving Lever	M 128	QKJ0537	Operating Button Frame
Fast Forward Driving Lever	M 129	QBP1953	Operating Lever Spring
Fast Forward Driving Lever	M 130	QBN1898	Fast Wind Rod Spring
Fast Forward Driving Lever	M 131	QBW2020	Washer
Fast Forward Driving Lever	M 132	XWG26	Washer 2.6 $\phi$
Fast Forward Driving Lever	M 133	XTN2 + 5B	Tapping Screw $\phi 2 \times 5$
Fast Forward Driving Lever	M 134	XTN2 + 4BFZ	Tapping Screw $\phi 2 \times 4$
Fast Forward Driving Lever	M 135	XTN3 + 6B	Tapping Screw $\phi 3 \times 6$
Fast Forward Driving Lever	M 136	XTN3 + 12B	Tapping Screw $\phi 3 \times 12$
Fast Forward Driving Lever	M 137	QJT0015	Lug Terminal



When servicing this mechanism unit, refer to the disassembly notes and assembly instructions described in the service manuals of RS-M51, RS-M13, RS-M14 and RS-M04 (RS-M24 mechanism series).

## SPECIFICATIONS

Pressure of pressure roller	350 $\pm$ 50 g
Takeup tension * Use cassette torque meter ... QZZSRKCT	45 $\pm$ 15 g-cm - 15
Wow and flutter; (JIS) * Use test tape ... QZZCWAT	Less than 0.08% (WRMS)

## Motor Unit Disassembly

1. Remove screw (A) and connection plate retainer (M107). Then remove fast forward connection plate (M104), rewind connection plate (M105) and record connection plate (M106) (see Fig. 1).
2. Remove three screws (B) and remove operation button unit (see Fig. 2).
3. Remove two screws (C) and hook at section (D) to dismount flywheel retainer (M44) (see Fig. 2).
4. Remove hook at section (E) and cord clamber (M48) (see Fig. 2), and then remove two screws (F) (see Fig. 3) to dismount motor unit.

## Precautions for Mechanism Unit Assembly

Before installing the operation button unit in the mechanism unit, pull the play changing lever (M102) of the mechanism unit in the direction of the arrow until it is locked, and set the pause, F.F. and rewind buttons of the operation button unit to OFF. At this time, check that all parts are installed at their proper positions at sections (G), (H) and (I) (see Fig. 2).

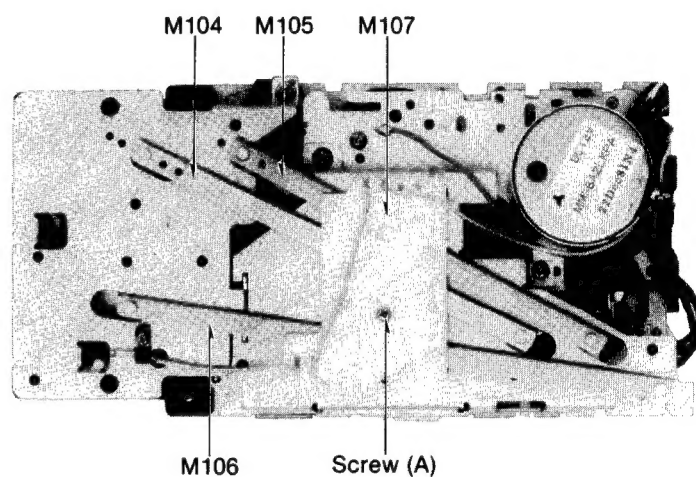


Fig. 1

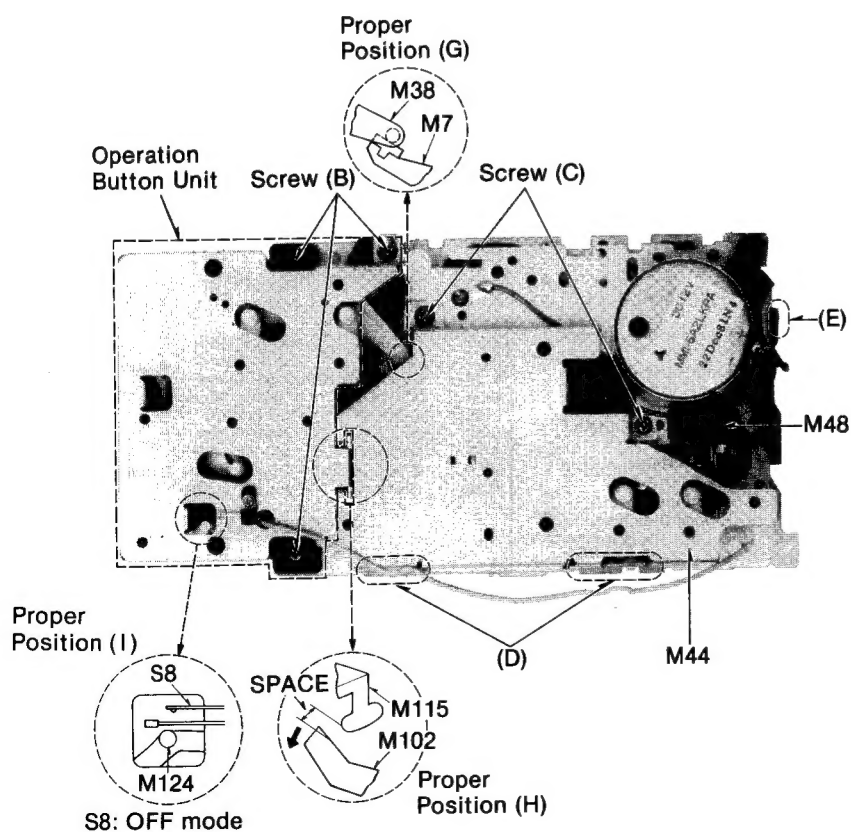


Fig. 2

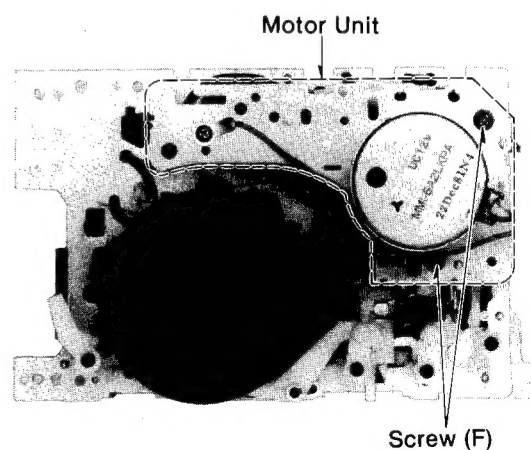
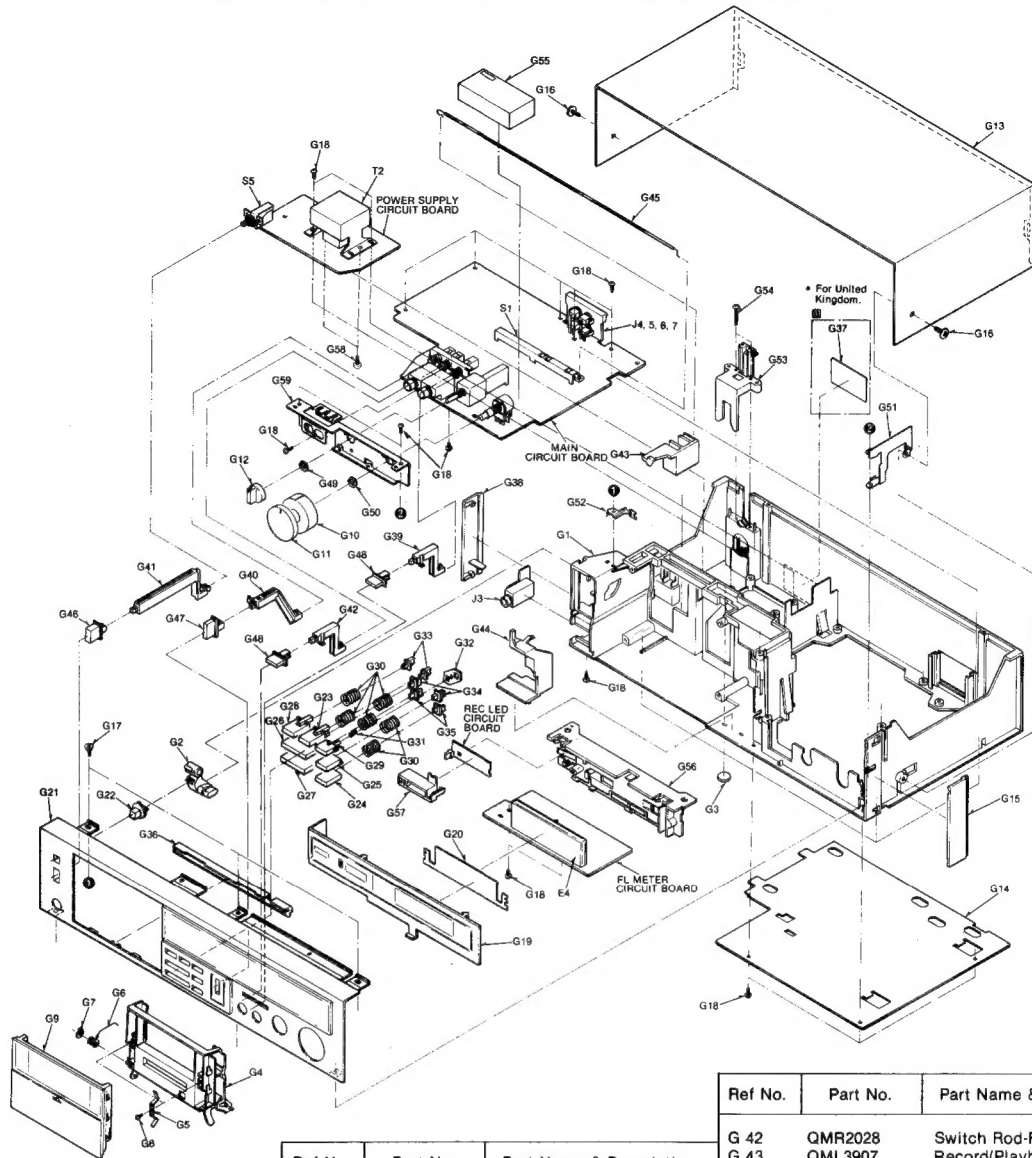


Fig. 3

## CABINET PARTS LOCATION



## REPLACEMENT PARTS LIST

Ref No.	Part No.	Part Name & Description
<b>CABINET PARTS</b>		
G 1	QKM1535K	Main Case
G 2	QML3908	Eject Lever
G 3	QKA1081	Rubber Foot
G 4	QKF2105	Cassette Holder
G 5	QBP1923	Holder Spring
G 6	QBN1893	Eject Spring
G 7	XUB5FT	Stop Ring 5φ
G 8	XTN26 + 5BFZ	Tapping Screw $\varnothing 2.6 \times 5$
G 9	QYF0560	Cassette Lid Assembly
	"Silver Type"	
	QYF0560K	Cassette Lid Assembly
	"Black Type"	
G 10	QYT0647	Volume Knob-R Assembly
G 11	QYT0648	Volume Knob-L Assembly
G 12	QGT1591	Tape Selector Knob
G 13	QGC1231	Case Cover
	"Silver Type"	
	QGC1231K	Case Cover
	"Black Type"	
G 14	QGC1232	Bottom Cover
G 15	QGK3260	Side Panel-R
	"Silver Type"	
	QGK3260K	Side Panel-R
	"Black Type"	
G 16	QHQ1324	Screw
	"Silver Type"	
	QHQ1324K	Screw
	"Black Type"	
G 17	XTS3 + 10B	Tapping Screw $\varnothing 3 \times 10$

Ref No.	Part No.	Part Name & Description
G 18	XTN3 + 10B	Tapping Screw $\varnothing 3 \times 10$
G 19	QGK3263	Meter Cover
	"Silver Type"	
	QGK3263Y	Meter Cover
	"Black Type"	
G 20	QGL1177	Meter Filter
G 21	QYP1110	Front Panel Assembly
	"Silver Type"	
	QYP1110K	Front Panel Assembly
	"Black Type"	
G 22	QGO2059	Eject Button
G 23	QGOM0089	Fast Forward Button
G 24	QGOM0095	Pause Button
G 25	QGOM0093	Record Button
G 26	QGOM0092	Playback Button
G 27	QGOM0094	Stop Button
G 28	QGOM0088	Rewind Button
G 29	QGOM0097	Counter Reset Button
G 30	QBC1414	Button Spring
G 31	QBC1187	Idle Spring
G 32	QKJ0547	Spring Holder
G 33	QKJ0544	Button Rod-A
G 34	QKJ0545	Button Rod-B
G 35	QKJ0546	Button Rod-C
G 36	QKJ3529K	Spacer
G 37 [B]	QGS2994	Main Name Plate
	[For United Kingdom.]	
G 38	QGK3286	Side Panel-L
	"Silver Type"	
	QGK3286K	Side Panel-L
	"Black Type"	
G 39	QMR2026	Switch Rod-D
G 40	QMR2027	Switch Rod-E
G 41	QMR2019	Switch Rod-C

Ref No.	Part No.	Part Name & Description
G 42	QMR2028	Switch Rod-F
G 43	QML3907	Record/Playback Lever
G 44	QML3909	Counter Reset Lever
G 45	QBS1139	Record/Playback Connection Wire
G 46	QGO1900	Power ON/OFF Button
G 47	QGO2052	Push Button-B
G 48	QGO2071	Push Button-C
G 49	XNS8	Nut 8φ
G 50	XNS9	Nut 9φ
G 51	QJC0054	Earth Plate-A
G 52	QJC0057	Earth Plate-C
G 53	QKJ0550K	Cord Clamper
G 54	XTN3 + 20B	Tapping Screw $\varnothing 3 \times 20$
G 55	QTS1586	Shield Case
G 56	QKJ0548	Meter Holder
G 57	QKJ0549	LED Holder
G 58	XTN3 + 8B	Tapping Screw $\varnothing 3 \times 8$
G 59	QMA4440	Volume Angle
<b>ACCESSORIES</b>		
A 1	QEB0125	Connection Cord
A 2 [D]	QQT3331	Instruction Book
[For all European areas except United Kingdom.]		
[B]	QQT3310	Instruction Book
[For United Kingdom.]		
<b>PACKINGS</b>		
P 1	QPN4332	Inside Carton
P 2	QPA0676	Cushion-R
P 3	QPA0675	Cushion-L
P 5	QPC0072	Poly Sheet
(for AC Power Cord)		
P 6	XZB40X60A02	Poly Bag (for UNIT)

ARD

Y.F. **DDKBK**

Printed in Japan

# Service Manual

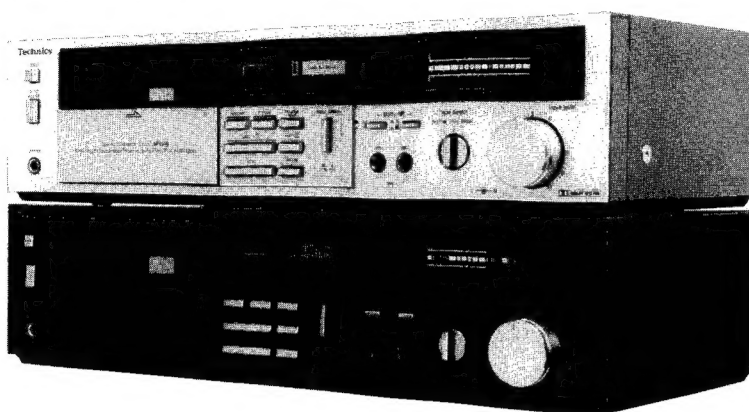
Cassette Deck

Soft-Touch Cassette Deck  
with Dolby B-C NR

RS-M226

(Black Face)  
(Silver Face)

Supplement-2

This is the Service Manual  
for the following areas.

**D** ...For all European  
areas except United  
Kingdom.

**B** ...For United Kingdom.

## RS-M24 MECHANISM SERIES

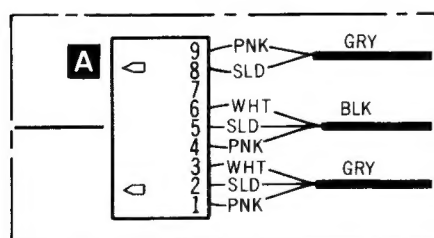
Please use this manual together with the service manual for  
model No. RS-M226 (Original) order No. ARD82060161C8-11 and  
RS-M226 (Supplement-1) order No. ARD82100161S2-01.

## PARTS COMPARISON TABLE:

Please revise the original parts list in the Service Manual (RS-M226) to conform to the changes shown herein.  
If new part numbers are shown, be sure to use them when ordering parts.

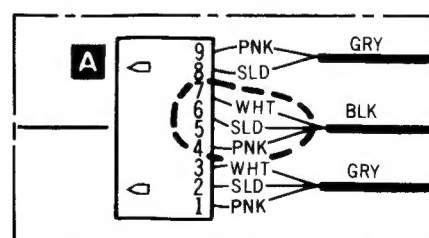
Ref. No.	Part Name & Description	Part Numbers		Remarks
		Former Type	New Type	
G3	Rubber Foot	QKA1081	QKA1093	
G6	Eject Spring	QBN1893	QBN1937	
G37	Main Name Plate	—	QGS3094	Added

## CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM



Former Type

(Correction)



New Type

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# Technics

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